A good day's earnings for an oyster-opener at Fair Haven is $1 50; this, of course, is often exceeded, but the books of one firm showed me that the average wages for a whole season was only about $20 per month. It very frequently happens that no work is done at one or another establishment for several days, or only a little opening each day. Hence about 350 openers serve the whole business by moving around. Men, as a rule, earn more than women.

In regard to the population supported by the oyster-business in this neighborhood, I find it extremely difficult to get accurate statistics. It is a variable and partial quantity. I estimate the number of principals—planters, dealers, and shippers in and about New Haven—at 125; of laborers (men), at 135; and of openers (chiefly women), at 340.

PACKING AND SHIPMENT OF OYSTERS.—As soon as the oysters are opened they are placed in a flat pan with a perforated bottom, called a skimmer, where they are drained of their accompanying liquor. From time to time a quantity is dipped out and put into a large colander, or conical basin with perforated bottom and sides, which is placed over a tall cask. Here a stream of water is turned upon them, and they are stirred about until washed clean, after which they are put into wooden tubs for shipment, or tin cans for local traffic. The tubs are all labeled with the name of the owner, and are returned by the customer. Their covers fit with exactness, and lock with rivet and seal in such a way that they cannot be opened on the road without certain discovery.

The expressage of oysters from Fair Haven to the interior of New England is so large that the afternoon trains have one car, and sometimes two cars, devoted exclusively to the carriage of these goods. Large shipments were formerly made in wagons to Albany and thence westward, especially to the large towns in central New York. Now these oysters go by rail, of course, but also much farther westward, even to Cincinnati, Chicago, and San Francisco.

STATISTICAL RECAPITULATION FOR NEW HAVEN HARBOR, CONNECTICUT:

| | | |
|---|---|---|
| Number of planters, wholesale-dealers, and shippers | | 135 |
| Extent of ground cultivated | acres | 2,600 |
| Value of shore property | | $100,000 |
| Number of vessels and sail-boats engaged: | | |
| Steamers | 2 | |
| Sail-boats | 100 | |
| Row-boats | 150 | |
| | | 252 |
| Value of same, about | | $30,000 |
| Number of men hired by planters or dealers | | 200 |
| Annual earnings of same | | $50,000 |
| Number of women hired | | 275 |
| Annual earnings of same | | $30,000 |
| Total number of families supported, about | | 400 |
| Annual sales of— | | |
| I. Native oysters | bushels | 128,250 |
| Value of same | | $130,000 |
| II. Chesapeake "plants" | bushels | 450,000 |
| Value of same | | $350,000 |
| Total value of oysters sold annually | | $480,000 |

## G. THE HOUSATONIC AND SAUGATUCK REGIONS.

### 33. OYSTER-FISHERIES OF BRIDGEPORT AND WESTPORT.

NATURAL BEDS AND SEED-OYSTERS.—Having passed to the westward of New Haven and Milford harbors, we come upon a new feature of the oyster-business. This is the systematic dredging of natural beds in the sound and along the inlets of the shore, for seed to be placed upon the artificial beds in the eastern part of the sound, in the East river, and on the south shore of Long Island. This department of the business will demand more and more attention, as I progress toward its headquarters at Norwalk. The most easterly natural bed which these dredgers attack is one off Clark's point, just east of the mouth of Oyster river. (In Oyster river itself, by the way, no oysters have ever been known, within the memory of tradition, although that name appears in a map drawn prior to 1700.) The next natural bed consists of a reef, five acres in extent, on the western side of Pond point. Beyond that, off Milford point, at the mouth of the Housatonic, lies the Pompey bed, which afforded sustenance to the sea-hut colony that used to frequent Milford point, and where now a crop can be gathered about once in five years.

Upon the opposite side of the entrance to the Housatonic lies one of the principal seed-grounds in the sound; that side of the Housatonic river is one vast natural oyster-bed all the way from Stratford light up to the bridges, a distance of about three miles. There are many persons who live along the shore in Stratford, who devote almost their whole time to the gathering of the young oysters and selling them to the vessels, which in summer throng the bay. They get from 15 to 25 cents a bushel, and there are perhaps 50 men who make this a business.

SEED-GATHERING AT THE MOUTH OF THE HOUSATONIC.—In May sloops and small schooners begin to come after the seed, which is of a year's (or less) growth. They hail principally from Norwalk and its vicinity. This fleet gradually increases, until in mid-summer there are sometimes to be seen from 75 to 100 vessels at once in the mouth of the river. These vessels do not dredge for the seed. They anchor near the bed and send out skiffs, with a crew, who tong the oysters up until their skiff is full, when they take it to their vessel to be unloaded. From one to half a dozen skiffs are employed by each vessel, which is thus able to load up quickly, go home with its cargo, and be ready to return. To avoid any loss of time, however, in voyages back and forth, some owners of beds keep one or more vessels anchored in the Housatonic all the while, upon which the crews live, who load other vessels that are constantly passing back and forth. The rapidity of this work is shown by the fact, that one man with two assistants will put upon his sloop a full cargo of 500 bushels in two days, and be off and back in another two days, ready to go at it again. Persons who live upon the shore, and who claim to found their estimate on trustworthy facts, say that 400,000 bushels of seed were taken off these Housatonic beds between May and November, 1879.

OBJECTIONS TO PRESENT METHOD OF SEED-GATHERING.—Notwithstanding this heavy and long continued drain, these nurseries do not seem in danger of depletion. Few oysters, of course, manage to reach maturity, but there are enough to furnish spawn to repopulate the district, which the constant scraping fits in the best possible manner for securing a set. The people of Stratford, however, are beginning to object to longer allowing an unrequited privilege to everybody to rake the beds. Such an indiscriminate crowd embraces many loose characters, and frequent petty annoyances, with some serious trespasses, have occurred on shore. There seems no way to get rid of the nuisance, however, except to declare the whole ground available for culture, and stake it off. This is urged by some of the shoremen, who think they see in this plan some chance of making the meadows and river-bottom a valuable property, and a blessing instead of a curse to them. This meets with considerable opposition, however, and the old foolishness about "natural beds" seems an insurmountable obstacle. Every year the staking-off and cultivation of this river-bottom is delayed Stratford loses by it in a way she will one day regret. Stratford also possesses along her front very good deep-water ground, running from Stratford point to the Middle Ground, which remains to be utilized. The Housatonic seed, however, could not be utilized on this outer ground, since it is the long, fresh-water variety, which would not flourish in water so salt as that of the outer sound.

OYSTER-BUSINESS AT BRIDGEPORT.—At Bridgeport there is a small but flourishing oyster-business, participated in by three firms of planters. The natural oyster-producing ground off this harbor extended from Stratford to Black Rock, a distance of about five or six miles, but by 1850 it had become exhausted of all salable oysters, and even became of little value as a seed-producing area. Previously to that seven boats were owned at Bridgeport, all of which, since 1850, have been obliged to go elsewhere or change their work. Long ago, however, a Fair Haven man utilized ground at the point of the beach at the mouth of the harbor, to bed down southern oysters, and his example was followed in a small degree by Bridgeport men. The first planting of native seed, however, was not until 1844, young oysters being brought from the Saugatuck and from Westport. At present Stratford and Housatonic seed is chiefly used. For opening purposes the Housatonic river seed is regarded as the best, because it becomes salable one year quicker than the sound seed; but for shipping in the shell the deep-water seed produces more profit, though of slower growth, the mature stock being single, shapely, and of large size.

The practice of catching seed-oysters on shells prevails here with much success, but will be so fully discussed in a future chapter, that I refrain from doing more than mention the fact here; and add that Mr. Wheeler Hawley, the largest planter at Bridgeport, believes himself to have been one of the first, if not *the* first, to adopt this method of oyster-culture in Long Island sound, putting the date of his experiments at 1853.

Replying to my questions in regard to methods and cost of following this practice in this harbor, one of the planters informed me that, in his case, he counts expenses per acre in preparation of oyster-bottom as follows:

| | |
|---|---|
| 500 bushels shells ("stools") at 5 cents | $25 00 |
| 50 bushels of "spawners" (unculled) | 12 00 |
| Total cost of seeding | 37 00 |

From this, he thought he ought to take up 1,000 bushels of seed to the acre of marketable oysters after two years, with a remainder left for the third year. The cost of taking up would be about 20 cents a bushel. If seed-oysters are bought to be placed upon the ground, from 25 to 60 cents a bushel must be paid for them.

The total acreage under cultivation at Bridgeport, for which a rental of $2 an acre is paid to the town, is about 110 acres. On this ground there were raised in the winter of 1879–'80 about 8,000 bushels, which were mainly sold in the shell to New York buyers, at an average of about $1 12½ a bushel. These oysters were large and fat, often opening six quarts to the bushel, as I was informed. In 1857 they brought $12 a barrel.

The fleet employed by the oystermen here consists of nine sail-boats, worth, perhaps, $2,500 in total; the care of the beds and running of the boats give support to about a dozen families, and occasional wages to others at the height of the season, the pay being about $2 a day.

OYSTER-BUSINESS AT WESTPORT.—Westport, Connecticut, is a little harbor on the Saugatuck river, one of the most beautiful of the many charming streams that debouch along this part of the coast. The river has long been celebrated for the abundance, large size, and excellent flavor of its natural oysters. They grew almost continuously, in favorable seasons, from the mouth of the river up to the village bridge, a distance of about four miles, and the farmers who lived along the river were accustomed to gather them in any desired quantity, without a thought of exhausting the supply. The depletion came at last, however, and now few marketable oysters, native to the Saugatuck, are ever procured.

Some years ago, when attention was first called to the desirability of transplanting oysters and raising them upon artificial beds, the Westport men staked off a large area at the mouth of the Saugatuck. No ground within the river, however, was allowed to be assigned, the town reserving all this as "common ground", where seed might be gathered by poor men and everybody, to be sold to the planters. The amount of seed thus procured annually varies greatly with different years. The highest trustworthy estimate given me for any one year (and this not recently) was 50,000 bushels. Last year, however, only about 4,000 bushels were caught; half was planted locally and half sold to outside buyers. In midsummer a score or so of men in skiffs may often be seen in the river at once, raking seed-oysters, but these work only occasionally, and there are less than a dozen men who really derive their support "by following the creek" (chiefly oystering), in the whole town. The seed used is between one and three years of age, and it is sold by the skiffmen for 35 or 40 cents a bushel. Smaller mixed stuff sometimes sells for 20 cents. There are only two or three sail-boats devoted to this work.

The first efforts at planting were made in the mill-pond east of the village—a pond of salt water about 40 acres in extent. The bottom of this pond is a soft mass of mud; not barren, clayey mud, but a flocculent mass of decayed vegetation, etc., apparently inhabited through and through by the microscopic life, both vegetable and animal, which the oyster feeds upon. Although the young oysters placed there sank out of sight in this mud, they were not smothered, on account of its looseness, but, on the contrary, throve to an extraordinary degree, as also did their neighbors, the clams and eels, becoming of great size and extremely fat. Ten years ago oysters from this pond sold for $3 a bushel; and for one lot $16 50 is said to have been obtained. Before long, however, a rough class of loungers began to frequent the pond, and the oysters were stolen so fast, that planting there has almost wholly ceased, and prices have greatly declined.

Something over 500 acres of oyster-ground have been set apart in the waters of the sound belonging to Westport. This ground lies in the neighborhood of Sprite's, Hay, Calf-pasture, and Goose islands. Two-thirds of it is owned by Norwalk men and other non-residents, and therefore the town has derived no revenue of consequence from it.

The principal planter in town is Mr. Eli Bradley, who gave me the most of the information obtained here. He has been long engaged in the business, and has planted many thousands of bushels of seed upon his beds, as, also, have his neighbors, but there has been so much litigation concerning boundaries, so much actual thieving, and so incessant persecution by the starfishes and drills, that not much has been realized. Last year (1879) no oysters whatever of consequence were placed in the market from these beds. Outsiders, however, shifted certain oysters into Westport waters, temporarily, and saved a good crop, the figures relating to which appear elsewhere. All the residents at Westport assert strongly the extreme suitability of their ground for successful oyster-raising, barring the damages inflicted by the starfishes, which, they think, they can keep free from with sufficient labor.

STATISTICAL RECAPITULATION FOR THE HOUSATONIC AND SAUGATUCK REGION:

| | | |
|---|---|---|
| Number of planters and shippers | | 6 |
| Extent of ground cultivated | acres | 110 |
| Value of shore-property | | $3,500 |
| Number of vessels and sail-boats engaged | | 12 |
| Value of same | | $3,000 |
| Number of men hired by planters | | 15 |
| Annual earnings of same | | $5,000 |
| Total number of families supported | | 21 |
| Annual sales of— | | |
| Native oysters | bushels | 9,000 |
| Value of same | | $11,000 |
| Total value of oysters sold annually | | $11,000 |

# H. THE EAST RIVER AND PECONIC BAY.

## 34. OYSTER-INTERESTS FROM HELL GATE TO PORT JEFFERSON, NEW YORK, AND NORWALK, CONNECTICUT.

EAST RIVER DEFINED.—To oystermen, and for all the purposes of the present report, the East river is that narrow part of Long Island sound, at its eastern end, which extends from Hell Gate to the Norwalk islands on the Connecticut shore, and to Port Jefferson on the Long Island side. It is a district very old in the annals of oyster-gathering and culture, and one which contributes largely to the trade.

EARLY HISTORY OF OYSTERING.—Traditions concerning the beginning of oystering as a regular industry are very few and faint. I am indebted to Mr. Theodore S. Lowndes, of Rowayton, Connecticut, for some pleasant reminiscences.

It seems not to have been until about 1814 or 1815 that much attention was attracted to the oyster-beds of the East river, as a source of business advantage. At that time it was considered a degrading thing to rake oysters for a living, yet the father of my informant, Mr. Edward William Lowndes, went energetically into the enterprise, with several of his neighbors—William Price, Drake Sopers, Stephen Jennings, James Jennings, and Benjamin Totten, the last named having returned from loyal participation in Commodore Perry's victory on lake Erie. All of these gentlemen lived on City island, and their descendants are still to be found among the leading citizens of that community. At that time there was no occasion to plant oysters, the bivalves being plentiful upon their natural beds, and easy of access with dredges, rakes, and tongs, very similar to those now in use. Mr. Lowndes writes me as follows:

> The oysters caught nearest Hell Gate were in Flushing bay, between Barien's island and Fisher's point, and I've heard my father say that he had caught oysters below Blackwell's island, on the edge of the flats at Newtown creek, on the Long Island side, but they were only a small lot.
>
> My father was often annoyed, in his day, by local laws and prejudices against oystermen. On one occasion, as I have heard him tell, while he was at work off Shippen point, on Long Island sound, he was taken ashore at Stamford, and had a ride given him into the country. When brought back his vessel was unloaded, and he was told to get out as soon as possible, which he was glad to do. On returning to New York, he went to the collector of the port, General Morton, who sent Captain Calhoun, commanding a revenue cutter in the United States navy, to inform the captains of some packets that plied between New York and Stamford, that if any oystermen should be disturbed again in that locality, he would come up with the cutter and protect them; but there was no further trouble. My father was concerned in several such vexatious adventures.

Mr. Lowndes and his fellow-citizens showed it possible to work at this with so much diligence and pecuniary success, as to put this occupation in a more favorable light, and caused many more of their neighbors to enter it. The result is, that probably two-thirds of the population of City island, to-day, derive their support from the oyster-interests owned there. The same is true of the north shore of Long Island.

Natural oyster-beds once existed in greater or less abundance all along the shore of Westchester county, New York, and the opposite coast. Though the Harlem river and the region near Hell Gate have long been abandoned, through over-raking and the unfavorable conditions which have followed the incessant commercial use of these waters, now within the great city of New York; a little farther up, the raking is still practiced. The passenger on the Harlem and New Rochelle railway, can see from the cars, the boats of men catching oysters in all the little nooks and corners of the coast above Port Morris, and across toward College point. The steamboats run daily across seed-ground, and make landings amid plantations.

EAST CHESTER BAY.—The first oyster-ground of any consequence, however, going up the river, is found in East Chester bay, which surrounds City Island. Off Throgg's point, at the southern end of this bay, are great natural banks, which have withstood long and steady raking. In these waters are the oldest artificial beds in the East river, for the regular planting of oysters (inaugurated, according to tradition, by Mr. Orrin Fordham) was begun here half a century ago.

The planters all have their homes on City island, and are about sixty in number. In addition to these sixty planters, there are perhaps a dozen more men who get their living out of the business. It is safe to say, at any rate, that half a hundred families derive their support from the oyster-industry in this one community.

The total production of East Chester bay, last season (1879–'80), may be placed approximately at 55,000 bushels. In order to catch the seed of these oysters and carry them to the New York market, where all the crop is sold, there is owned here a fleet of one steamer, specially fitted, about 45 sloops, some 25 floats, and at least 100 skiffs. All of these craft are of excellent quality, and represent a value of something like $35,000, which, with an addition of about $5,000 for shore-property, may be taken as the amount of the investment in the industry at City island, exclusive of the value of the stock now lying under the water, on the various beds, and which is a sum hardly possible even to guess at.

PELHAM TO MILTON.—At Pelham, New Rochelle, Mamaroneck, Rye, and Milton, the business does not attain much dignity, although a large number of families, fully 100, are supported partly by it and partly by digging

clams (mainly *Mya arenaria*), catching lobsters, and in other sea-shore occupations distinct from regular fishing. The ground occupied is embraced in little bays and sheltered nooks, for the most part, and is not of great extent. There are about 20 planters, who, at an average of 250 bushels—a large estimate, probably—would furnish a total of 5,000 bushels a year. Nearly if not quite all of this goes into the hands of peddlers, who dispose of it from wagons throughout the adjacent villages. Many of the planters, and some summer residents in addition, lay down seed wholly for private use. There is a large seed-bed off this part of the coast, which furnishes small stock, not only for local use, but for the towns both east and west. About $5,000 would no doubt cover the investment between City island and Port Chester.

PORT CHESTER.—Port Chester is the last town in the state of New York, East Chester, just across the bridge, belonging to Connecticut. The exact boundary of the two states was long undecided, and was the cause of much annoyance and dispute among the oystermen of the contiguous waters, who were incessantly charging one another with violation of law and their neighbor's rights, by crossing the imaginary line, and so invading the property of the other state. In consequence of this a joint commission was appointed to settle the boundary between the states, the definition of which, so far as it relates to the waters of Long Island sound, is as follows:

Beginning at a point in the center of the channel about 600 feet south of the extreme rocks of Byram point, marked No. 0 on the appended United States' coast survey chart; thence running in a true southeast course three and one-quarter statute miles; thence in a straight line (the arc of a great circle) northeasterly to a point four statute miles true south of New London light-house; thence northeasterly to a point marked No. 1 on the annexed United States' coast survey chart of Fisher's Island sounds, which point is in the longitude E. three-quarters N. sailing course drawn on said map, and is about 1,000 feet northerly from the Hammock or N. Dumpling light-house; thence following the said E. three-quarters N. sailing course as laid down on said map, easterly to a point marked No. 2 on said map; thence southeasterly toward a point marked No. 3 on said map, so far as said states are continuous. Provided, however, that nothing in the foregoing agreement contained shall be so construed to affect existing titles or property, corporeal or incorporeal, held under grants heretofore made by either of said states, nor to affect existing rights which said states or either of them, or which the citizens of either of said states, may have by grant, letters-patent, or prescription of fishing in the waters of said sound, whether for shell or floating fish, irrespective of the boundary line hereby established, it not being the purpose of this agreement to define, limit, or interfere with any such right, rights, or privileges, whatever the same may be.

At Port Chester and East Chester lives a considerable colony of oyster-planters. In all, about 25 families derive their chief maintenance from this industry; but four-fifths of the planters find it necessary to supplement their profits from this source by other labor, in order to get a living. The total product of the locality was about 9,000 bushels last year, only a fraction of which is sent to New York. The price is now 80 cents for the small and $1 for large size. In 1878–'79 it was 20 per cent., and in 1877–'78, 40 per cent. higher. There are eight sloops, with floats, arks, etc., owned here, which foot up an invested capital of about $7,000.

Before leaving the New York waters of East river, however, it will be well to mention some laws applying to this coast. In the Revised Statutes of 1875, under Title XI, Fisheries, are the following sections applying here, in addition to the general important law prohibiting steam-dredging:

SECTION 5. Forbids taking oysters in Harlem river during June, July, and August.

SEC. 6. Provides jurisdiction in case of offense against section 5.

SEC. 7. Permits any owner or lessee of lands adjoining Harlem river to plant oysters in front of their property, where the ground is not occupied; but he must put up a plain sign, stating (with owner's name) that this is a private oyster-bed. No person except the owner shall take up oysters on such ground. Penalty, $50.

SEC. 8. Empowers constables of either Westchester or New York counties to seize boats and implements of offenders against section 7.

SEC. 9. Defines how arrests are to be made and offenders prosecuted.

GREENWICH.—The next point eastward is Greenwich, where, at Greenwich, Old Greenwich, Greenwich cove, Cos Cob, and Mianus, a large business is done and a large number of persons is engaged, though oysters are not now raised here to as great an extent nor of so fine quality as formerly.

The mouths of all the rivers and each of the many coves that indent this rocky coast are filled with planted oysters, though a general feeling of discouragement, arising from various causes, prevails. In all about 800 acres are under cultivation, all in shallow water, and the total annual product for last year, of the whole region, may be set down at 33,000 bushels, the majority of which was taken to New York in the boats of the respective owners, and sold to the dealers at the foot of Broome street.

The number of families supported in this township, out of this occupation, it is hard to state. I estimate it at about forty. The craft employed amounts to one steamer, about 30 sloops, and perhaps 100 small open boats. These, with other estimated fixtures, foot up an invested capital approaching $30,000, exclusive of oysters now growing on the beds.

STAMFORD.—The next oyster-producing point is Stamford, where, also, I found the planters bewailing the decline of their fortunes. The number of men raising oysters is about a dozen, and perhaps as many more are employed. From about 150 acres of improved harbor-bottom Stamford yielded for market, in 1879, about 5,500 bushels of oysters, the majority of which was shipped to New York. Their fleet counts up 9 sloops, which, with boats, floats, and so forth, are stated to be worth about $15,000. The principal men at Stamford are A. M. Prior and Capt. John Decker.

DARIEN AND ROWAYTON.—At Darien, three miles beyond, about 3,000 bushels a year are sold from about 250 acres. They have ten or a dozen sail-boats, and a value in oyster-interests, generally, of perhaps $5,000.

The next point is the very important station known as Five-Mile-River or Rowayton, where the cultivation of oysters has been systematically pursued for many years. In all, at present, there are about 35 planters or firms, and nearly or quite as many families are supported. The little creek-mouth is perfectly filled with oyster-boats, and the other conveniences of this pursuit. I find upon my list of the oyster-fleet 28 sloops and sail-boats, which belong here, some of them very large and well built. I estimate the value of these "sail" and the other floating and shore-property at Rowayton, directly concerned in the oyster-trade of the port, at not far from $30,000. Rowayton produced, in 1879, which was considered a very poor year, something near 50,000 bushels. How far beneath occasional crops, if not beneath the recent average, this is, is shown by the statement made to me, that about five years ago a single dealer in New York city bought 32,000 bushels of Rowayton oysters. Little of the stock raised at this point fails to reach New York, and within the last three years Rowayton has supplied a large proportion of the oysters sent to Europe, partly by direct shipment. Like all other parts of the East river, the oysters are sold here wholly in the shell; and almost always by the barrel or bushel—the selling "by count" belonging to the region further west and to the Long Island shore.

SOUTH NORWALK.—Just eastward of Rowayton lies the city and harbor of South Norwalk, one of the most important oyster-producing localities in Long Island sound, as well as one of the "oldest". The bay at the mouth of the Norwalk river is filled with islands, which protect the shallow waters from the fury of the gales. This whole bay, in old days, was full of native oysters from the sound, all the way up to Norwalk itself. Long before the elaborate means for growing oysters, at present in vogue, were thought of, therefore, Norwalk supplied the people of that region with fine, large, natural oysters, just as it had for centuries been a storehouse of shellfish food to the Indians, the remains of whose feasts and feasting-places are still to be found.

About forty years or more ago, however, the natural beds in the vicinity of Norwalk harbor had become so depleted that they no longer afforded to anybody employment that amounted to anything; nor was it until toward the year 1850 that any transplantation of seed, or anything in the shape of the propagation, was attempted. The business of oyster-growing here, therefore, which at first sight seems of immemorial age, is only about thirty years old. The history of its growth need not be given here. It will be sufficient to publish the statistics I have accumulated in regard to the present status of the business at this point.

The principal planters and shippers at South Norwalk (with which I include its suburb, Village Creek) are the Hoyt Brothers, Graham Bell, Oliver Weed, C. Remsen, Raymond & Saunders, Peter Decker, the Burbanks, and several others who raise more than 1,000 bushels a year. In addition to these there are many men who have small beds, which they keep increasing as fast as circumstances permit, and who make a part of their living by working at wages for planters whose operations are more extensive than their own. There is one firm, for instance, which employs the services of 18 or 20 men nearly all the time, and in some seasons largely increases this number. These smaller planters sell their little crops of from 100 to 1,000 or 1,500 bushels to the half a dozen shippers, chief among whom are the Hoyt Brothers and Mr. G. Bell, wisely preferring cash, at a small discount, to the trouble and risk of themselves taking their oysters down to New York, or elsewhere, in hopes of a slightly larger price. During the present season (1879–'80) the price paid at the boats has averaged about $1, taking little and big together. The culling, as a rule, is done afterward, and the prices the shippers have received, after culling and packing, have been as follows—it is understood, of course, that these are sold in the shell and shipped in barrels, going chiefly to New York:

| | Per hundred. | Per barrel. |
|---|---|---|
| Extras | $1 40 | $5 25 |
| Box | 90 to 1 00 | 5 25 |
| Culls | 45 to 50 | 4 25 |
| Cullenteens | 35 | 4 25 |

Barrels are valued at 25 cents each.

The total number of bushels produced in 1879 (to which time my statistics refer for the sake of completeness), as well as this year (1880), makes a sum which is asserted to fall far short of what is considered an average or a high estimate. Nearly every man said to me: "Well, this year was a poor one." How much of this is to be attributed to modesty and a timid desire to belittle the figures, and how much is truth, it is hard to tell. I am inclined to think it pretty nearly true. Prices, at the same time, are much lower than formerly, owing to the unusually poor quality of the oysters of these waters this year and last; but I do not think that this is a permanent depreciation in fatness and excellence of taste (as I fear is the case from Stamford to Port Chester), but only a temporary misfortune. Between scarcity and inferiority, the oystermen of Norwalk find themselves much less cheerful just now than they are wont to be. The total production of this locality, during the season of 1878–'79 (the present season, 1880, will probably be found not greatly to differ from it), is given at about 65,000 bushels.

These oysters, as I have said, were the property of 50 planters, which gives an average of 1,300 bushels to each one. It is probable, however, that as many more persons got their living out of these oysters, from first to last, so that I do not hesitate to say that 100 families in South Norwalk and its immediate vicinity, are supported by the cultivation and sale of oysters there. The estimate of 200 families, which I have often heard made, is undoubtedly too high. This question is ever a hard one to answer, because, in many cases, the head of the family depends only

partially upon his professional means of support, the attention he pays to it and the income he derives, varying with each good or bad season. Most oystermen are also farmers or fishermen. Many of them, also, keep summer hotels, and thus add largely to their income during the dull season at the beds.

Every supposed available spot for oyster-operations, probably, is now set apart for that purpose, not only inside of the Norwalk islands, but also in the outside waters of the sound off the mouth of the harbor. Only a portion of this is in use, however; in all, about 680 acres out of 2,300, in round numbers, which have been designated in Norwalk harbor. The average production at present, therefore, is less than 100 bushels to the acre of land actually cultivated, and only about 28 bushels to the acre of bottom held for the purpose of oyster-cultivation. I see no reason why future years ought not to see ten times as large a proportion.

The fleet of Norwalk used by the oystermen in their business, consists of 2 steamboats, a dozen sloops, and about 30 sharpies and sail-boats, of less size and value than the "sloops", most of them being without decks. Besides this there are skiffs innumerable. This disparity in the number of large sloops between so important a place as Norwalk and some of the small ports westward, is explained by the fact that the planters here do not often themselves take their goods to New York.

What shall be given as the amount of the investment at South Norwalk is a difficult question. The answer can hardly be more than guessed at. There are several large warehouses and offices devoted to the work. Extensive wharves have been built, and arrangements for landing are made. There are 25 or 30 "arks", as they are termed, or floating oyster-houses, made by housing in half a canal-boat, a scow, or some old hulk, and there is an extensive outfit of boats and tools. I judge that the following table represents nearly the truth of the case:

| | |
|---|---|
| 2,300 acres oyster-ground, worth | $6,000 |
| Shore-property for business-use | 10,000 |
| "Arks" and scow-houses | 5,000 |
| Sloops and other boats | 25,000 |
| Steamers | 6,000 |
| Floats, dredges, tools, etc | 3,000 |
| | 55,000 |

This, of course, leaves out all estimate upon the value of the oysters now upon the beds, or the money which has been spent (and sunk) in improvement, up to this time. This is a matter which it would be exceedingly difficult to ascertain, and of small importance, because constantly varying and undecided. I suppose about $50,000 a year are reinvested in the beds at Norwalk, counting the time of the planters as so much money; if it were cash expended, however, instead of their own labor, they could not follow it. Few can afford to hire help, except occasionally, for a few days at a time. Wages, in that case, are from $1 to $2 per day.

SADDLE-ROCK OYSTERS.—From a particular part of Norwalk harbor, many years ago, came to Tom Donan's famous old shop in Broad street, New York, the original "Saddle-rocks", named from the reef around which they grew. These oysters were so large that 25 would fill a bushel basket; yet they were tender and luscious, and often sold for from 15 to 30 cents apiece. But they were not very numerous, and the raking of them was so profitable that the supply was quickly exhausted. Like the generous host who gave them name and fame, they have long ago departed, except from the branding-iron and sign-board of the dealer, whose "Saddle-rocks" now may have come from anywhere except Norwalk.

That is the story as I was told it at South Norwalk; since writing it I have seen an article on the subject, taken from the *New York Observer*, and vouched for by the Rev. Samuel Lockwood, who speaks of the writer as "our friend, Dr. O. R. Willis". This article places Saddle rock on the opposite shore of the sound. It reads thus:

The original Saddle-rock oyster was not only very large, but possessed a peculiar, delicious flavor, which gave it its reputation. And it received its name because it was discovered near a rock known as Saddle rock. A high northwest wind, continued for several successive days, always causes very low tides in Long Island sound and its bays. On the farm of David Allen, situated near the head of Great Neck, on the eastern shore of Little Neck bay, is a rock about 20 feet high, and from 15 to 20 feet in diameter. The shape of the top of this rock resembles somewhat the form of a saddle, and from that circumstance is called Saddle rock. At low water the upper or land side of this rock is left bare, while the opposite or lower side is in the water. In the autumn of 1827, after a strong northwest wind had been blowing for three days, a very low tide occurred, and the water retreated far below the rock, leaving a space wide enough for a team of oxen to pass quite around it. This extraordinary low tide revealed a bed of oysters just below the rock. The oysters were very large, and possessed the most delicate flavor; we collected cart-loads of them, and placed them in our mill-pond (tide-mill). The news of the discovery spread among the oystermen, and boat-loads soon found their way to the city, where, on account of their excellent flavor, they commanded fancy prices, even reaching $10 a hundred!—an enormous price for those days. In a very short time the locality was exhausted, and for more than forty years there has not been a real Saddle-rock oyster in the market.

SOUTH SHORE OF EAST RIVER.—On the southern side of Long Island sound the "East river" extends as far as Port Jefferson, which lies nearly opposite Bridgeport. Beginning at the Narrows above Hell Gate, as before, we find the remains of ancient native oyster-beds all along the shore. This was one of the favorite points of market-supply for New York years ago. Its traditions remain, as witnessed by the following paragraph from DeVoe's *Market Assistant:*

In the month of September, 1859, a discovery of a great oyster-bed was made at Eaton's Neck, on the Long Island shore, by five fishermen from Darien, Connecticut. It is stated that "they found themselves too far out, and dropping overboard an oyster-dredge to

bring their boat to anchor", when ready to draw it in again on board, they found it very heavy, and after raising it to the surface they had it filled with fine large oysters, when they soon loaded their boat, and entered into a mutual compact of secrecy, but it was broken; the information was sold [for $500], and the valuable discovery was soon made public. Thousands of bushels were taken and replanted, and those which were planted in deep water produced some extra fine large oysters, which found a ready sale in our markets.

For help in calculating the oyster-riches of this southern shore of the East river, I am indebted to the labors of Mr. Frederick Mather, of the United States Fish Commission, who also acted as a special agent of the Census there.

FLUSHING BAY AND VICINITY.—The first point, beginning at the western extremity, is Flushing bay. Twenty men are engaged here in oystering and clamming, almost inseparable employments along this shore. There are oyster-beds staked out here, worth, counting seed and appliances, $8,000, and they produced last year 10,000 bushels of oysters. Six boats of four or five tons, cat-rigged, are employed. In addition to this four men, supporting three families, oyster in Flushing bay, but live at College Point, and sent to market 8,000 bushels last year, using two boats. All shipments are by boat.

In Little Neck bay the oyster-beds are free of cost, but are staked off in private claims and planted, a condition respected by neighbors, but giving no legal sanction. The seed is obtained from near by, and is worth 25 cents a bushel. "There is a desire," says Mather, "on the part of some of the oystermen to pay for their grounds and get some protection in return. Now their only claim is on the seed, and they can sue or prosecute a man for stealing that. I found a great difference of opinion among the oystermen on the bay in regard to the laws. Some holding that the statutes did, and others that they did not, protect the claimants of oyster-beds. A man's heirs claim his beds and the claim is respected, but it does not appear that the beds are salable in the sense of giving a deed for a consideration. In a discussion on this point, which I encouraged in order to get at the facts, one man said, derisively: 'I would like to see a good bed found and have the town attempt to sell it. There'd be fun, and somebody would get hurt, sure, for when there's a find we all go for it, and the one that gets the most is the best fellow.'"

One of the towns on this bay is Whitestone, from whence 4,500 bushels of oysters are sent; another is Little Neck, where 30 men make a living by oystering and clam-fishing, and raise an annual crop of 10,000 bushels. One sloop, over 20 tons, and seven over 5 tons, are engaged.

GREAT NECK AND VICINITY.—At Great Neck there is considerable business—about 5,000 bushels a year, which go to market in boats owned at Little Neck.

Off this coast, between Great Neck and Hell Gate, are very persistent natural beds of oysters, which annually furnish fair raking-ground, whence the planters in the vicinity obtain nearly all their seed. In the lower part of the river the oil and deposits from the petroleum refineries at Hunter's Point, have injured or wholly destroyed the beds. The best ground is directly in the steamboat channel, where the cinders falling from the innumerable freight, "sound line", and excursion steamers that pass daily, furnish a capital cultch for the oyster-spat to attach itself to. This ground is gradually extending itself into a productive tract half way to Norwalk. The seed lies particularly thick here in a bed about three miles long, off Eaton's Neck. In summer this whole region is excellent clamming-ground. I have counted 100 boats, doing well, at once between Sea Cliff and Throgg's Neck. Many boats had two men, and this number was not unusual. This scraping of the bottom with the big, deep-cutting, dredge-like clam-rake undoubtedly contributes to the growth of young oysters as well as young clams there, by preparing the ground to retain the spawn, which is at that very season floating about.

For oysters raised west of Great Neck, buying agents of New York houses paid the planters last season an average price of 75 cents per bushel.

PORT WASHINGTON.—Port Washington, on the other hand, a village upon Cow bay, in one of the most beautiful districts of Long Island, is the seat of a very large oyster-planting interest. It is a fine sight to look down from the hill upon the bay, crowded with its miniature shipping, dotted by the large floats which are anchored all along the shore, and its sunny surface enlivened by countless small boats moving about here and there in eager haste. At the wharves are usually to be found two or three sloops from New York buying oysters, with the names and advertisements of their owners painted in huge black letters on the broad mainsail; or at a favorable condition of season and tide the whole trim fleet spreads its canvas and sweeps out to the dredging-grounds in beautiful array.

It is more than thirty-five years since George Mackey first began the planting of oysters in this bay; now this industry is the main business in the town, and commands two-thirds of all the influence—out of 320 voters on the rolls, 200 being oystermen. Nearly all of these are heads of families, and as representative names I might mention the Mackeys, the Jarvises, J. J. Thompson, A. Thatcher & Co., Thomas Allen, Peter H. Holt, J. Van Pell, and various others. In order to carry on their business they have, perhaps, $10,000 worth of shore-fixtures, and from $40,000 to $50,000 worth of floating property, embraced in 70 sloops and sail-boats, averaging $500 in value, and in floats, skiffs, tools, etc. The amount of ground under use it would be impossible to say—I could get no notion of it—since it is scattered and is not measured for allotment as it is in Connecticut. Guessing at it, I should say there are 2,000 acres. The water is tolerably shallow—28 feet is the deepest told me of—and tongs are mainly used. The bottom, almost universally, is muddy, and no spring-shifting is resorted to. The total production last year (and

substantially the same will be true of 1880) was 75,000 bushels. These were sold on the spot, for the most part, to New York buyers, who paid an average of 75 cents a bushel. The yield of these beds this year was said to be unusually good, both in quantity and quality. These oysters were sold mainly at home, to buyers who came in sloops from New York. When disposed of by the bushel, they brought an average of 75 cents, or even less. Culled out and sold carefully by count, as was done often, the prices were: For the largest, $6 per 1,000; medium size, $3 per 1,000; poorest, $1 per 1,000. One firm alone in New York, at the Broome-street wharves, is reputed to have taken over 10,000 bushels. Formerly they must have paid 20 per cent. more than the schedule of prices given above.

HEMPSTEAD BAY AND VICINITY.—Hempstead bay seems to be not so prolific in molluscan life as the preceding indentations of the coast. The planters go elsewhere for seed. In Roslyn about 30 men occasionally rake oysters and clams, and half as many families are thus partially supported. The year's catch is reported at 15,000 bushels.

At Glenhead 50 men are in the oyster and clam business, supporting 35 families. The product was about 15,000 bushels in 1880, nearly all of which went to New York by boat.

Glen Cove is the home of 15 oystermen, who say they have $5,000 invested at present in seed-oysters, and $2,500 more in boats and tools. The shipment is wholly by water, and amounts to 20,000 bushels annually.

Concerning the next inlet, Oyster bay, Mr. Mather writes that "it is a famous locality for oysters, and notwithstanding that the line between Queens and Suffolk counties strikes the bay at its eastern end, leaving Cold Spring on one side and the other villages on the other, the same law prevails. The oyster-beds are leased by the towns at 50 cents an acre; number of acres not limited. Some oystermen object to this, and a few of the principal ones refuse to pay, but stake off their claims and hold them by force. About three-fourths of the bay is staked off, and the greater portion is planted. The seed is obtained from Bridgeport, Connecticut, at 25 cents per bushel of (averaging) 5,000 oysters. It is not necessary to buy much when the spawn 'sets', as it did this year [1880] and last. A few shipments are made by rail, but mainly by boat, and a few have been packed for Europe."

Bayville is the first village on Hempstead bay to be considered, its railway station being Locust Valley. The oyster-interests here are said to contain an investment of $60,000, and 60,000 bushels go to markets in New York and Connecticut annually. As the yearly revenue from this is only $15,000, a large portion must be designed to seed other beds. The shellfisheries are said to support here about 75 families, and many women find irregular employment in opening oysters and clams. Thirteen sloops, of from 30 to 10 tons each, are employed, the total value of which is $13,000; 4 cat-boats, $400; and 100 row-boats, at $15, $1,500, making a grand total value of $14,900. Much of this is employed in clamming, however.

At Oyster bay, $25,000 are invested in oyster-beds, and 75,000 bushels of oysters are taken annually. There are 23 sailing-boats, large and small, owned by these men, and to a large extent, at least, devoted to oystering and clamming, which together are estimated as worth $15,000.

In Cold Spring there are 45 men oystering in the season, half of whom have families. The harbor is three miles long by one mile wide, and three-fourths of it, or about 500 acres, is planted with oysters. The total shipments reported from these beds in 1880, amounted to 25,000 bushels. Most of these went to New York by boat, except in freezing weather, when the railroad carried some. Seven sloops, counting 56 tons in all, and worth $6,000, belong at this port.

HUNTINGTON BAY AND VICINITY.—Crossing over now to Huntington bay, another good mollusk-district is met with. The principal town is Huntington, which is well landlocked. Here the investment amounts to about $8,000, and $1,800 in small boats, by means of which 15,000 bushels of oysters are got up for market yearly. Perhaps 20 families are thus supported.

Centreport contributes a larger corps of general fishermen and oystermen, 100 men being reported as engaged in the season, 60 of whom are married. Twenty-five sail-boats belong here, and are worth $15,000; while $100,000 are said to be invested in oyster-beds, that yield 50,000 bushels annually.

In Northport and East Northport, 15 men are engaged, half having families, but their additional investments and contributions are already accounted for above.

Very large interests are owned in Huntington bay by the Lowndes Brothers and others, of Norwalk, Connecticut, but the yield of their beds is not considered in the present account, because already counted at Norwalk. The ground is leased under local regulations at 50 cents a year per acre; and there is no tax upon it until it becomes of distinct value to the owner. The town treasuries receive a considerable revenue from this source. Should all lessees pay properly, the sum would be larger; but here, as frequently elsewhere, a legal doubt exists as to the right of the town of Northport to rent the bottom of the bay, since these waters and the bottom are claimed by the adjoining town of Huntington, under charters from King George III. The matter now is pending decision in suit. A similar plea on the part of Brookhaven, in respect to the eastern end of the Great South bay, has been upheld by the courts, notwithstanding that the land fronting on much of the water in question was long ago set apart from Brookhaven into the town of Islip.

The oyster-interests of Smithtown bay are very small, and chiefly centered at Stony Brook, where there are 16 sloops, worth $10,000, employed, and a further oyster-investment of about $20,000. The amount of oysters sold last year was 18,000 bushels. Out of the proceeds of this, large clam-grounds, and some fishing, 300 persons made a living here.

PORT JEFFERSON HARBOR.—Going over to Port Jefferson harbor, we find several villages united in the improvement of a single piece of water. At Setauket are two planters, with two sloops, $3,000 invested, and 3,000 bushels produced. At East Setauket 50 men go oystering, 35 of whom are heads of families. There are $25,000 invested in the beds here, but business has been poor of late, only 30,000 bushels having been taken. From Port Jefferson 35 men are engaged on the bay, of whom 20 are married. The oyster-ground here is leased by the town at $3 an acre, and only four acres allowed each planter. This is the first season any systematic planting has been done, the seed being obtained from the Connecticut shore. At Mount Sinai, a little beyond, 800 bushels of oysters were sold in 1880. This is the last point of oyster-culture on the north shore of Long Island; beyond, the coast is abrupt and uncut by those sheltered and shallow bays so suitable for the business, with which the western end of the island is furnished.

GENERAL CONDITION OF THE OYSTER-BUSINESS ON THE NORTH SHORE OF LONG ISLAND.—In conclusion, some words of explanation or caution should be uttered in respect to the statistical statements relating to this north shore. The large array of men engaged (806), families supported (500), and sailing-craft (165) in use, does not compare well with the total of bushels raised, which is only 377,500, worth from $300,000 to $350,000. But it must be remembered that, in the large majority of cases, the oystermen are also farmers, and besides are engaged in the menhaden-fishing and various other sorts of seine-fishing; while they add to their income from their oyster-beds something like $250,000, derived from the sale of about 181,000 bushels of quahaugs, or hard clams, and 293,000 bushels of soft clams, annually. It therefore happens that many, most, indeed, of the "oystermen", are really at work only a portion of their time.

NEW YORK OYSTER-LAWS, APPLICABLE TO EAST RIVER.—Certain enactments by the legislature of New York must be quoted, applying to the East river and the north shore of Long Island. These are substantially as follows:

Any person who shall * * * in any manner catch, interfere with, or disturb the oysters of another now or hereafter lawfully planted upon the bed of any of the rivers, bays, sounds, or other waters within the jurisdiction of this state, shall be deemed guilty of a misdemeanor. Penalties, fine not exceeding $250, imprisonment not more than six months, or both.

No person who has not been a resident of the state for six months may rake or gather clams, oysters, or shellfish, in any waters of this state; but an actual resident may employ any person to gather shellfish for his benefit.

No dredging for clams or oysters within the state "with a dredge, operated by steam-power", is permitted, and no dredges are to be used exceeding thirty pounds in weight.

In the general statutes the following sections apply to Queens county:

SECTION 78. Persons who have been for six months or more inhabitants of Queens county, may plant oysters in any of the public waters of that county, except Hempstead harbor, Jamaica and Hempstead bays, and Oyster bay harbor; and may acquire exclusive ownership of such beds.

SEC. 79. Any person as aforesaid may use land under public waters in Queens county, as aforesaid, "not to exceed three acres in a bed, and on which there is no natural or planted beds of oysters, for the purpose of planting oysters thereon"; but he must clearly mark and define the portion so selected by him, as a notice to the public, and shall not hold possession unless he puts oysters upon it, within six months, to the extent of at least 50 bushels to the acre.

SEC. 80. Forbids any persons taking or disturbing oysters on beds mentioned in section 79.

SEC. 81. Penalty for violation of section 80, fine not to exceed $100, or 60 days in prison, or both.

SEC. 82. Process of arrest and trial.

SEC. 83. Oyster-ground is forfeited in Queens county by ceasing to use it for one year, or at the end of two years from his removal from residence in the county.

SEC. 84. Forbids dredging for oysters in any waters of Queens county, except in Oyster bay harbor, and in Cow bay; and no person, unless a resident of North Hempstead, shall dredge in Cow bay. Penalty, fine not exceeding $100, imprisonment not over 60 days, or both.*

SEC. 85. Repeals previous laws inconsistent.

SEC. 86. "The natural growth or bed of oysters in * * * Little Neck bay, in said [Queens] county, is hereby defined as being between low-water mark and a distance of 500 feet therefrom, into the waters of said bay toward its center, beyond which, in the planting of oysters * * * the word 'natural' shall not apply."

METHODS OF OYSTER-CULTURE.—The East river is the scene of probably the most painstaking and scientific oyster-culture in the United States, and the methods in use there merit careful notice. It is impossible to ascertain when it first became a custom there to transplant oysters from the abundant natural beds along the shore to staked-in tracts off shore, nor is it of much importance to inquire. Probably the very first of this was done in the Harlem river. Half a century ago, however, City island was populated by oystermen; and in 1853 the *New York Herald* reported that the largest proportion of all the East river oysters, used in New York, came from there, "where there are extensive artificial and natural beds". The same article stated that then City island owned a fourth of the 100 boats engaged in conveying East river oysters to the metropolis, and that 100 men and families on the island obtained a living by oystering. The whole amount of property invested there was estimated at $1,000,000. This included the value of the beds, and was supposed to represent one-third of the capital of all the East river interest.

*Section 84 was repealed by chapter 402, laws of 1879, "in so far as the same relates to the waters of the county of Queens, lying on the north side thereof, except that portion of the waters of Hempstead harbor lying south of a line drawn from the center of Sea Cliff dock, on the east side of said harbor, to the center of Mott's dock on the west side thereof."

This writer asserts that twenty years previous—which would make it about 1833—East river oysters were almost unknown in New York markets; and that it was not until about 1843 that any planting was engaged in. The character of this planting is not indicated; but I have no doubt that, whatever was the date of its origin, the credit of first truly propagating oysters from seed caught upon artificial beds or prepared receptacles, belongs to the men of City island. It had been a matter of common observation, that any object tossed into the water in summer, became covered at once with infant oysters. The sedges along the edge of the marshes, and the buoys, stakes, and wharf-piles were similarly clothed. If the circumstances were favorable, this deposit survived the winter, and the next spring the youngsters* were large enough to be taken and transplanted. It was only a short step in logic, therefore, to conclude, that if objects were thrown thickly into the water, on purpose to catch the floating spawn, a large quantity of young oysters would be secured, and could be saved for transplanting at very slight expense. The next question was: What would best serve the purpose? Evidently nothing could be better than the shells which, year by year, accumulated on the shore from the season's opening trade. They were the customary resting-places of the spawn, and at the same time were cheapest. The City island oysterman, therefore, began to save his shells from the lime-kiln and the road-master, and to spread them on the bottom of the bay, hoping to save some of the oyster-spawn with which his imagination densely crowded the sea-water. This happened, I am told, more than fifty years ago, and the first man to put the theory into practice, it is remembered, was the father of the Fordham Brothers, who still pursue the business at City island. In 1855, Captain Henry Bell, of Bell's island, planted shells among the islands off the mouth of Norwalk river, and a short time after, under the protection of the new law of 1855, recognizing private property in such beds, Mr. Oliver Cook, of Five-Mile river, Mr. Weed, of South Norwalk, Mr. Hawley, of Bridgport, and others, went into it on an extensive scale. Some of these gentlemen appear never to have heard of any previous operations of the sort. Discovering it for themselves, as it was easy and natural to do, they supposed they were the originators; but if any such credit attaches anywhere, I believe it belongs to the City island men. It was soon discovered that uniform success was not to be hoped for, and the steady, magnificent crops reaped by the earliest planters were rarely emulated. Many planters, therefore, decried the whole scheme, and returned to their simple transplanting of natural-bed seed; but others, with more consistency, set at work to improve their chances, by making more and more favorable the opportunities for an oyster's egg successfully to attach itself, during its brief natatory life, to the stool prepared for it, and afterward to live to an age when it was strong enough to hold its own against the weather. This involved a closer study of the general natural history of the oyster.

The first thing found out was, that the floating spawn would not attach itself to, or "set" (in the vernacular of the shore), upon anything which had not a clean surface; smoothness did not hinder—glass-bottles were frequently coated outside and in with young shells—but the surface of the object must not be slimy. It was discovered, too, that the half-sedimentary, half-vegetable deposit of the water, coating any submerged object with a slippery film, was acquired with marvelous speed. Thus shells laid down a very few days before the spawning-time of the oysters, became so slimy as to catch little or no spawn, no matter how much of it was floating in the water above them. This taught the oystermen that they must not spread their shells until the midst of the spawning-season; that one step was gained when they ceased spreading in May and waited until July. Now, from the 5th to the 15th of that month is considered the proper time, and no shell-planting is attempted before or after. This knowledge of the speed with which the shells became slimy was turned to account in another way. It was evident that the swifter the current the less would there be a chance of rapid fouling. Planters, therefore, chose their ground in the swiftest tideways they could find.

The mere manner of spreading the shells was also found to be important. If they are rudely dumped over, half their good is wasted, for they lie in heaps. The proper method is to take them from the large scow or sloop which has brought them ashore, in small boat-loads. Having anchored the skiff, the shells are then flirted broadcast in all directions, by the shovelful. The next boat-load is anchored a little farther on, and the process repeated. Thus a thin and evenly-distributed layer is spread over the whole ground. Just how many bushels a man will place on an acre depends upon both his means and his judgment. If he is shelling entirely new ground, he will spread more than he would upon an area already improved; but I suppose 250 bushels to the acre might be recommended as an average quantity. Having spread his shells in midsummer, the planter, by testing them early in the fall, can tell whether he has succeeded in catching upon them any or much of the desired spawn. The young oysters will appear as minute flakes, easily detected by the experienced eye, attached to all parts of the old shell. If he has got no set whatever, he considers his investment a total loss, since by the next season, the bed of shells will have become so dirty that the spawn will not take hold if it comes that way. Supposing, on the contrary, that young oysters are found attached in millions to his cultch, as often happens, crowding upon each old shell until it is almost hidden, what is his next step?

* There is no word in the northern states for infant oysters, except the terms "set", "spat", "spawn", etc., all of which belong originally to the eggs or spawn of the oyster, and not to the young, but are frequently and confusedly applied as well to the half-grown mollusks. In the south the name "blister" (referring to its smooth, puffed-up appearance) is given to the infant oysters, and serves to distinguish them from "seed", "cullens", and "oysters", which represent the successively larger sizes and stages of growth.

The ordinary way in the East river and elsewhere, is simply to let the bed remain quiet, until, in the course of three or four years, such oysters as have survived are large enough to sell, when the bed is worked—at first, probably, with tongs and rakes, getting up the thickest of the crop. This done, dredges are put on, and everything that remains—oysters, shells, and trash—is removed and the ground left clean, ready for a second shelling, or to be planted with seed, perhaps right away—perhaps after the area has lain fallow, exposed uncovered to the influences of the sea for a year. Oystermen have an idea (probably well founded, though badly theorized upon) that this improves the bottom for oyster-culture, as much as a similar rest would the soil of an upland field for agriculture.

In the process of growth of the young oysters lodged upon the fields of cultch, when left undisturbed, there is, and must of necessity be, a great waste under the most favorable circumstances. Leaving out all other adversities, this will arise from over-crowding. More "blisters" attach themselves upon a single egg than can come to maturity. One or a few will obtain an accession of growth over the rest, and crowd the others down, or overlap them fatally. Even if a large number of young oysters attached to a single stool do grow up together equally, their close elbowing of one another will probably result in a close, crabbed bunch of long, slim, unshapely samples, of no value save to be shucked. To avoid these misfortunes, and, having got a large quantity of young growth, to save as much as possible of it, the more advanced and energetic of the planters, like the Hoyts, of Norwalk, pursue the following plan: When the bed is two years old, by which time all the young oysters are of sufficient age and hardiness to bear the removal, coarse-netted dredges are put on, and all the bunches of oysters are taken up, knocked to pieces, and either sold as "seed", or redistributed over a new portion of bottom, thus widening the planted area, and at the same time leaving more room for those single oysters to grow which have slipped through the net and so escaped the dredge. The next year after, all the plantation, new and old, is gone over and suitable stock culled out for trade, three-year-old East river oysters being in demand for the European market. This further thins out the beds, and the following (fourth) year the main crop of fine, well-shaped, well-fed oysters will be taken, and during the succeeding summer, or perhaps after a year, the ground will be thoroughly well cleaned up, and prepared for a new shelling.

All these remarks apply to a reasonably hard bottom, which requires no previous preparation. In portions of Long Island sound, especially off New Haven, it has been needful to make a crust or artificial surface upon the mud before laying down the shells. This is done with sand, and has been alluded to in the chapter on New Haven harbor.

Just what makes the best lodgment for oyster-spawn intended to be used as seed, has been greatly discussed. Oyster-shells are very good, certainly, and as they are cheap and almost always at hand in even troublesome quantities, they form the most available cultch, and are most generally used. Small gravel, however, has been tried on parts of the Connecticut coast with great success, the advantage being that not often more than one or two oysters would be attached, and therefore the evil of bunchiness would be avoided. Where scallop shells, as in Narraganset bay, or, as in northern New Jersey, mussels and jingles, *Anomia*, can be procured in sufficient quantities, they are undoubtedly better than anything else, because they not only break easily in culling, but are so fragile that the strain of the growth of two or more oysters attached to a single scallop or mussel-valve, will often crack it in pieces, and so permit the several members of the bunch to separate and grow into good shape, singly. I am not aware that any of the elaborate arrangements made in France and England for catching and preserving the spat have ever been imitated here, to any practical extent. The time will come, no doubt, when we shall be glad to profit by this foreign example and experience.

Although the effort to propagate oysters by catching drifting spawn upon prepared beds has been tried nearly everywhere, from Sandy Hook to Providence, it has only, in the minority of cases, perhaps I might say a small minority of cases, proved a profitable undertaking to those engaging in it; and many planters have abandoned the process, or, at least, calculate but little upon any prepared beds, in estimating the probable income of the prospective season. This arises from one of two causes: 1st. The failure of spawn to attach itself to the cultch; or, 2d. In case a "set" occurs, a subsequent death or destruction.

The supposition among oystermen generally has been, that the water everywhere upon the coast was filled, more or less, with drifting oyster-spat during the spawning-season, whether there was any bed of oysters in the immediate neighborhood or not; in other words, that there was hardly any limit to the time and distance the spat would drift with the tides, winds, and currents. I think that lately this view has been modified by most fishermen, and I am certain it greatly needs modification; but, as a consequence of the opinion, it was believed that one place was as good as another, so long as there was a good current or tideway there to spread shells for spawn, whether there were any living oysters in proximity or not. But that this view was fallacious, and that many acres of shells have never exhibited a single oyster, simply because there was no spat or sources of spat in their vicinity, there is no reason to doubt.

Having learned this, planters began to see that they must place with or near their beds of shells, living mother-oysters, called "spawners", which should supply the desired spat. This is done in two ways, either by laying a narrow bed of old oysters across the tideway in the center of the shelled tract, so that the spawn, as it is

emitted, may be carried up and down over the breadth of shells waiting to accommodate it, or by sprinkling spawners all about the ground, at the rate of about 10 bushels to the acre. Under these arrangements the circumstances must be rare and exceptional, when a full set will not be secured upon all shells within, say, 20 rods of the spawners. Of course fortunate positions may be found where spawn is produced from wild oysters in abundance, or from contiguous planted beds, where the distribution of special spawners is unnecessary; yet even then it may be said to be a wise measure.

The successful capture of a plenteous "set", however, is not all of the game. This must grow to salable maturity before any profits can be gathered, and it so often happens that the most promising beds in September are utterly wrecked by January, making a total loss of all the money and labor expended, that more than one planter has decided that it does not pay to attempt to raise oysters upon shells, so long as he is able to buy and stock his grounds with half-grown seed—a decision which may be based upon sound reasoning in respect to certain localities, but which certainly will not apply to all of our northern coast.

To what causes the well-filled artificial beds of infant oysters owe the destruction which seems often to overtake them in a single night, cannot always be told; we are not sufficiently acquainted either with the oyster or the conditions under which he lives, to detect the fatal influence. It is easily perceived, however, that these propagation-beds offer an unusual attraction to all the active enemies of the oyster, such as winkles, drills or borers, and starfishes, since they find there food not only in a superabundance, but thin-shelled and tender, so as to be got at in the easiest manner. It has very frequently happened in the East river, that starfishes alone have not only eaten up many acres of young oysters in a single season, on shelled ground, but so colonized there as to ruin utterly that tract for any further use, so long as they remained. It is certain that the half-grown transplanted seed is less attractive to oyster-enemies than the propagation-beds; but when, as frequently occurs, the latter survive misfortune and attack, the yield of profits is so great as amply to compensate for the risk. Those who do not catch any or sufficient seed for their purposes, upon areas of shells or other cultch, annually procure young oysters of natural growth, or "seed" with which to stock their beds. To this end they send their sloops from Norwalk eastward to the Housatonic beds, as has been described in a previous chapter, out into the sound off Bridgeport and to Shippen point, while the more westerly planters get their seed in the East river and off the Long Island shore. There seems to be little lack of supply, but the scene of good dredging and the amount gathered are continually changing. On the whole, however, there is a decrease of supply brought about by the largely increased number of boats now fishing every fall. More or less of the seed gathered here is sold by those who catch it, to local planters, and some goes to beds in Rhode Island and New York bay, or the south shore of Long Island. On the contrary, some little foreign seed, chiefly from the North river, is brought to Connecticut beds. The deep-water sound seed is the best. The seed is not usually culled, but is sold to the planter at about 25 cents a bushel, and distributed upon his grounds just as it is caught. In a bushel of it, consequently, not more than one-fourth (in a fair run) will consist of living oysters, the remainder being dead shells and trash of all sorts. Of this mixed stuff from 300 to 400 bushels are put on an acre lot. If it were culled, even roughly, it would bring from 40 to 50 cents, and one-half the quantity would be enough for the same ground, since the danger of planting too thick must be avoided. Frequently this is done. Some planters here never disturb their beds until they begin to take them up for market; but others make a practice of shifting their transplanted oysters, when two or two and a half years old, to a new spot. There they lie for one year, and are then ready for sale. The cost of shifting is from 10 to 15 cents a bushel; but the increase, both in size and flavor, is thought to compensate for this extra outlay.

The great drawback to East river oyster-planting of every kind, is the abundance of enemies with which the beds are infested. These consist of drum-fish, skates, and, to a small degree, of various other fishes; of certain sponges and invertebrates that do slight damage; and of various boring mollusks, the crushing winkle, and the insidious starfish or sea-star. It is the last-named plague that the planter dreads the most, and the directly traceable harm it does amounts to many tens of thousands of dollars annually in this district alone. Indeed, it seems to have here its headquarters on the American oyster-coast; but as I shall devote to it a special description in my chapter on the Enemies of the Oyster, I will only mention here the fact of its baleful presence, which has utterly ruined many a man's whole year's work.

DESTRUCTION OF EAST RIVER OYSTERS.—Nearly all the East river oysters are sold in the shell in New York. Those from the Connecticut shore and City island are generally taken to the city in the sloops of the owners, and sold to dealers at the foot of Broome street. This is partially true also of those raised on the Long Island shore; but there the New York firms, themselves often co-planters with the countrymen, send boats to buy up cargoes at the beds at a small discount from city prices.

## 35. PECONIC BAY, OR EASTERN LONG ISLAND.

THE EASTERN END OF LONG ISLAND.—The whole extent of bays and inlets contained between the two promontories, Montauk and Orient, which terminate Long Island at its eastern end, is subdivided under several names, the principal being Gardner's, and Great and Little Peconic bays. Though this region is highly productive in respect to the swimming fishes, and to several kinds of edible mollusks, yet oysters are not commonly found

there, nor do they flourish when planted. This dearth seems to be due to the unfortunate abundance of enemies, especially starfishes, since there is evidence that anciently oysters were indigenous and plenty. At the extremity of the northern cape "Oyster pond" and "Oyster Pond point" still preserve the recollection of what was once good tonging ground. Mr. Sanderson Smith, of the United States Fish Commission, once told me that he had found near there an extensive bed of dead shells of very large size, perforated throughout by boring-sponges. It is not surprising to learn these facts, but they point to a state of things now past, for there is no oyster-catching or planting at present in Peconic bay, which has any commercial importance.

The collector of the port at Sag Harbor, Mr. W. S. Havens, has for several years kept statistics of the yield of the fisheries in this series of bays, from which it appears that in 1879–'80, 5,000 bushels of oysters were taken; their value was $5,000. Of other shellfish (chiefly scallops), $22,400 is given as the value of the catch, which seems to me too low.

At Riverhead a company of six men was formed in the spring of 1880. They put up $50 each, and stocked one acre a short distance below the village with 675 bushels of seed from New Haven; but it did not grow well.

New Suffolk, Mattituck, and other towns in that neighborhood, do a large business in selling scallop-shells to Rhode Island and Connecticut fishermen, to be used as cultch on the propagating beds. The price is 2½ cents a bushel, at which rate the 75,000 bushels of shells sold all alongshore brought in $1,875.

At Southold oyster-culture has been begun by one man, who has planted 50 acres.

At Orient 800 bushels of oysters were taken last year, and an insignificant quantity on the Napeague shore, inside of Montauk. In the center of Montauk point is a large fresh pond, which it is proposed to turn into an oyster-pond, by opening a sluice so as to admit the salt water. At Sag Harbor 500 bushels are reported as the local catch, and another 500 bushels at Southampton. These three reports add up only 1,800 bushels. I suppose the remainder of Mr. Havens' total of 5,000 bushels were picked up at chance times by fishermen in various parts of the bays, and locally used.

STATISTICAL RECAPITULATION FOR EAST RIVER (AND PECONIC BAY):

| | | |
|---|---|---|
| Number of planters, wholesale-dealers | | 958 |
| Value of shore-property | | $347,200 |
| Number of vessels and sail-boats engaged | | 1,268 |
| Value of same | | $218,800 |
| Number of men hired by planters or dealers | | 125 |
| Annual earnings of same | | $67,500 |
| Annual sales of— | | |
| Native oysters | bushels | 669,800 |
| Value of same | | $708,925 |

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# I. THE SOUTH SHORE OF LONG ISLAND.

## 36. THE GREAT SOUTH BAY DISTRICT.

TOPOGRAPHY OF GREAT SOUTH BAY.—"Every schoolboy knows," as Macaulay used to say with his fine contempt for illiteracy, that all along the shore of Long Island, between the outer fence of the rigid and pitiless surf-repelling beach and the habitable shore, lie a series of shallow lagoons. The largest of these—thirty miles or more long and from one to five miles wide—is the Great South bay. This water is the salvation of all southern Long Island. If the land ran straight to the sea, and Fire island was not an island but simply a shore, the whole great extent would be as uninhabitable as the bleak rear of Cape Cod, all the way from Prospect Park to Moriches. But the bay furnishes an abundance of harbors; it abounds in fish profitable to catch; it tempts the ducks to its sedgy shore, and so invites an annual migration of money-spending sportsmen; it is paved with the "luscious clammes and crabfish" which the old Dutch poet extolled; and it furnishes to the world that marvel of delicacies, the oyster. Hence, in place of a pine-barren and a howling, friendless coast, we find a string of populous and thriving villages, the winter-havens of thousands of mariners, and the summer resort of city pleasure-seekers.

This shallow sound communicates with the ocean through Fire island inlet and a few more openings to the westward. The eastern part communicates through a narrow pass at Smith's point with East bay, which has no communication with the sea, and is almost fresh. The depth of water in the bay does not exceed two fathoms in its deepest part, and the rise and fall of the tide are very small, probably not more than a foot at the average. The bay receives considerable supplies of fresh water from a number of streams, celebrated for their fine trout. The western part of the bay has a sandy bottom, and its water, being in more direct communication with the ocean, contains more salt than that of the eastern part, where the bottom is a mixture of black mud with sand.

ABUNDANCE OF OYSTERS, PAST AND PRESENT.—This Great South bay has been called the most populous oyster-ground north of the Chesapeake bay, but the natural beds are all confined to the eastern end, where the

mud-bottom is. They do not occur much eastward of Smith's point, nor westward, in general, of a line drawn from Nicoll's point across to Fire island. Occasionally temporary and inconsequential beds "strike" in the tideways of inlets farther east, but nothing with regularity or of importance. This south-shore locality has been celebrated from time immemorial, and as early as 1679 had become an object of an extensive industry, as is witnessed by the following local ordinance, which I find stated in Watson's *Annals of New York*, (p. 284):

Oysters: To prevent the destruction of oysters in South bay, by the unlimited number of vessels employed in the same, it is ordered that but ten vessels shall be allowed, and that each half-barrel tub shall be paid for at the rate of 2*d.*, according to the town act of Brookhaven.

This right of the town of Brookhaven to dictate regulations in this matter exists to the present day, and arises from an ancient colonial grant to the town by patent from the king of England. Recognizing this grant, there was made an agreement in 1767 between William Smith, who was at that time the holder and representative of the rights and interests of the fishing in Great South bay, whereby the town, in exchange for the right to control the bay, contracted to give to him and his heirs forever one-half of all net income accruing to the town from the use of the bottom of the bay. This, of course, applied almost exclusively to oyster-culture, and the agreement has been kept, the revenue of the town from that source, in 1880, amounting to $1,032 95, half of which went to the heirs of old William Smith.

OYSTER-LAWS OF GREAT SOUTH BAY.—The present laws regulating oyster-matters at the eastern end of the bay are as follows:

SECTION 10. The owners and lessees of land bounded upon that part of Shinnecock bay lying west of a line drawn due south from Pine Neck point, in the town of South Hampton, in the county of Suffolk [Long Island], may plant oysters or clams in the waters of said bay, opposite their respective lands, extending from low-water mark into said bay not exceeding four rods in width.

No planting upon any "beds of natural growth", however, is authorized, or will be protected; nor can any person hold oyster-ground unless it is planted and occupied "in good faith". The locality of such planted beds must be designated by stakes and a monument on shore. To plant oysters or clams on such designated ground, without permission of the owner, subjects the offender to a forfeit of $12 for each offense, under stated processes of law. Heavy penalties also are inflicted upon persons who remove or deface boundary stakes. [This law, or legal permit, is practically a dead letter, since it has been found useless through the too great freshness of the water, and for other reasons, to plant in Shinnecock bay.]

Sections 100 and 101 of the Revised Statutes of 1875, Title XI, forbid dredging in the Great South bay, Long Island, or having in possession instruments for that purpose.

Sections 102 and 103 enjoin that "no person shall take any oysters, clams, mussels, or shells, or any substance growing on the bottom, from any public or private bed, or in any of the waters of the said South bay, except between sunrise and sunset on any day".

Section 104 forbids "catching any oysters, spawn, or seed-oysters" in Great South bay between June 15 and September 15.

The penalties for violation of the above-given regulations are a fine not to exceed $250, imprisonment up to six months, and an additional forfeiture of $200 for each offense; half the penalty goes to the informer, the remainder to the poor-fund.

REGULATION OF OYSTER-CULTURE IN SUFFOLK COUNTY.—In 1879 a law was passed regulating the formation of corporations for oyster-culture in Suffolk county, Long Island. Whether this law has ever been taken advantage of I am unable to say. It is as follows:

SECTION 1. Five or more persons who have leased or hold oyster-lots in Suffolk county may organize a company for the promotion of oyster-culture upon those lots, and shall become a corporate body, after filing prescribed statements, in writing, with the county clerk.

SEC. 2. There shall be not less than three nor more than nine trustees, holding office one year. By-laws shall be made to regulate the business of the corporation. Every lot owner shall have one vote, and a majority of votes shall control all questions.

SEC. 3. The trustees shall have the superintendence of the several oyster-lots held by the members, and shall regulate the methods of conducting the business by by-laws, which shall be publicly entered on a book, and which may be changed at annual meetings by a majority vote of the members of the company. The trustees may employ persons, and make monthly assessments upon the members, for money to meet the expenses of the company; and any member failing to pay such an assessment within 30 days may be sued by the corporation.

SEC. 4. If any member violates a by-law of the company, he forfeits $25, which may be recovered in an action against him by the corporation.

SEC. 5. Whenever, under the laws of this state, an action shall accrue to any member of said company for trespass, or for penalty by reason of any act or thing done or committed by any person, to or in or about the oysters, upon the lot leased, occupied, or held by such member, and said member shall assent thereto in writing, said action may be brought in the corporate name of said company, and all recoveries in said actions shall be the property of the company.

SEC. 6. The oysters upon the several lots of the several members of said company shall be and remain the separate property of the said several members, except that any and all shall be liable to levy and sale, under execution, for all judgments recovered against the company.

REGULATIONS OF OYSTER-CULTURE BY TOWN-LAWS OF BROOKHAVEN.—It will be known, of course, that Brookhaven does not consider any of these state laws as applying to her, since she regards the bottom of so much of the Great South bay as lies within her boundaries, as being wholly under her own control, and not amenable to state jurisdiction. The trustees of the town, therefore, make all the regulations thought necessary, which are not many in number.

A supervisor is appointed, who has charge of the letting of ground, in lots of one acre, to each male applicant of age, who is a resident of the town. The supervisor inspects the ground to see that it is not "a natural bed", places it upon his map, looks after its proper staking-out, and collects a personal fee for his services. The owners of oyster-grounds then pay to the town $1 a year rent per acre, and pay taxes upon their floating personal property engaged in the business, and upon oysters admitted to be upon their ground. In addition to this, every man, cultivator or not, who wishes to wield oyster-tongs on Brookhaven oyster-grounds, must pay $1 a year license-fee to the town for the privilege. This fee is known by the curious name "toleration", and it arose in this way: When the town ordered that every citizen might hold a lot, upon the conditions outlined above, it meant that no person should hold more than one. If, however, A got the use of B's name, and so acquired the control of two or more lots, no one objected. The theory was that every man worked his own lot; but soon men began catching seed-oysters in Bellport bay, around Smith's point, and elsewhere, and selling to the planters, who paid from 25 to 40 cents a bushel. In order to derive a revenue from this also, the town therefore ordered a "toleration-fee" of $1, to be paid by every man who handled a rake. In the fiscal year 1879–'80 these license-fees amounted to $371 50, while the rental of oyster-ground in Brookhaven during the same time was $1,056; total receipts of the town, $1,427 50, of which "the poor" got one-half. Any seeming lack of sufficiency in the amount of the toleration-fees must be charged to the fact, that many, no doubt, took advantage of the custom of commuting for the fee, by throwing upon the public ground eight or ten bushels of seed, *pro bono publico*.

RESTRICTIONS OF OYSTER-FISHING BY TOWN-LAWS OF BROOKHAVEN.—The stated restrictions placed by the town upon oystering are: that no dredging shall be done; no oyster-raking at night, nor between June 15 and October 1; and that no one not a citizen of Brookhaven shall be allowed to rake in her waters, or any person take or dispose of any oysters to be transplanted elsewhere. These regulations, being considered by those inside only as protective measures due to themselves, and being branded as an illegal and unkind selfishness and monopoly by those outside, have naturally caused considerable conflict between the oystermen of Brookhaven and their neighbors—a large part of the town of Islip, separated from Brookhaven before the full value of the oyster-bottom of the bay was appreciated. Brookhaven now claims that the water opposite Eastern Islip was not granted to Islip at the time of the separation, and that she retains control of it. To this Eastern Islip objects, and, with an additional reason, claims, with Western Islip, Babylon, and the state at large, the free right of Brookhaven waters. Brookhaven offers to let Eastern Islip men, in consideration of the old connection, rake with her own citizens, by paying a toleration-fee of $2, and anybody else for a fee of $3. This is paid by few or none, and Islip brought suit, which has long been pending, intended to break the monopoly. Meanwhile she and all the rest steal as much seed as possible—nearly all they need, in fact—from Brookhaven waters, the evidence required by the law being so very definite that they run small risk, even if caught, of being proved guilty in court. At the same time Islip and Babylon procured legislation authorizing the leasing of the bay-bottom in four-acre plots to citizens of those towns, for the purpose of planting oysters thereon, and it was made a misdemeanor for non-residents to tong oysters in any of the waters within their jurisdiction. This exclusion was a matter of indifference to everybody acquainted with the fact that no seed-beds of value existed in either town to tempt non-resident tongers. Brookhaven is now endeavoring to get aid from the state in securing to itself more protection. At a late town meeting one trustee made the astonishing statement, that during the spawning-season three thousand tubs of seed are weekly stolen from the bay and transplanted in the protected beds in other waters, those of Connecticut included. "As the seed is worth $1 a tub, the injury to the oyster-interests in Brookhaven is readily seen. While the oyster-planters of other towns are growing rich, those of Brookhaven are being made poor, and the time to seek protection was while something remained that was worth pocketing." One speaker said he controlled several hundred acres of excellent oyster-bottom, but was prevented from utilizing it by the depredations of non-residents; at which the said non-residents grinned with saturnine glee. What will be the result of the struggle between exclusion and free-raking, remains to be seen.

BROOKHAVEN BAY OR "BLUE POINT" OYSTERS.—Having thus stated the conditions and regulations under which oyster-culture exists in the Great South bay, let us turn to a consideration of the natural supply there, the methods of artificial increase, and the results in market-produce and active prosperity.

The natural, original growth of oysters in this sound, as I have already stated, is confined almost wholly between Smith's point and Fire island—practically to the waters east of Blue Point, known as Brookhaven bay. This was the home of the famous celebrity, the Blue Point oyster, which was among the earliest to come to New York markets. The present oyster of this brand is small and round; but the old "Blue Points", cherished by the Dutch burghers and peaked-hatted sons of the Hamptons, who toasted the king long before our Revolution was thought of, was of the large, crooked, heavy-shelled, elongated kind with which one becomes familiar all along the coast in examining relics of the natural beds, and which even now are to be found by the thousand in all the mussel-lagoons of the gulf of Saint Lawrence. Now and then, a few years ago, one of these aboriginal oysters, of which two dozen made a sufficient armful, was dragged up and excited the curiosity of every one; but the time has gone by when any more of these monsters may be expected.

In 1853 the *New York Herald* reported that the value of all the Blue Point oysters, by which name the Great

South bay oysters were generally meant, did not exceed yearly $200,000. "They are sold for an average of ten shillings ($1 25) a hundred from the beds; but, as they are scarce and have a good reputation, they sell at a considerable advance upon this price when brought to market. At one period, when they might be regarded as in their prime, they attained a remarkable size; but now their proportions, as well as their numbers, have been greatly reduced. There are about two hundred persons engaged in the business, including the proprietors and the hands employed in working the beds."

EXTENT OF SOUTH BAY BEDS IN 1873.—Twenty years later (in 1873) Count Pourtales, of Cambridge, made an examination of the oyster-producing districts near New York, at the request of the superintendent of the coast survey. In respect to this great bay south of Long Island, Count Pourtales wrote:

> The beds are of various extent, from a few acres to a hundred or more. They form large accumulations of dead shells, on the top of which the spawn attaches itself and produces a succession of crops. * * * Among the beds visited by me, the following deserve particular mention: Smith's point has been mentioned as being the eastern limit of the oysters. The water was found there to be only brackish, and the bottom of clear quartz pebbles, offering attachment to a small variety of oysters, tasteless though fat. They are only used for planting.*
>
> The Great bed (subdivided into North and South beds) off Patchogue appears to be one of the oldest. The tongs bring up large quantities of dead oyster-shells of great size, such as have been mentioned before. The living oysters obtained by a fleet of boats at work on it appeared to be generally about three years old, and were intended for planting at Rockaway until fall. Another celebrated bed is off Blue Point, which has a celebrity for the quality of its oysters in the New York and Boston markets. The California bed off Sayville is one of the largest, about 100 acres in extent. It is the westernmost natural bed, and was formerly extremely productive, but has been very much reduced by over-fishing. The oystermen recognize the oysters from that bank by the abundant growth of red sponge and sertularias on them. The mussel-beds are the nearest to the inlet, and the greater saltness of their flavor is a consequence of it. The lower shell is more frequently ribbed and the edge scalloped in the oysters of these beds than those from beds in the eastern part of the bay. To the westward and between these latter beds, the bottom is more sandy, and the scattering oysters found on it are known as "sand" oysters; they are easily recognized by their clean shells, scalloped on the edge and somewhat striped with dark colors when young; the growing edge is very thin but hard, while further east it is generally flexible. This would indicate a greater proportion of lime in the water, but the reason is not obvious, since the eastern part of the bay contains a much larger quantity of shells in a state of decomposition.

SIGNS OF EXHAUSTION IN THE OYSTER-BEDS.—It is nearly ten years ago that this inquiry was made by Count Pourtales, since even then apprehensions were felt, lest the supply of native oysters, once thought inexhaustible, should speedily find a sudden end. For a hundred years no one had thought anything like protection to the beds, or even moderation in raking, necessary. Boats had come from Rhode Island and Massachusetts, year after year, and had taken away unnumbered loads to be transplanted there, in addition to all the home-market consumption and the supply for Rockaway and Staten Island beds. Only 10 to 25 cents a bushel was asked for the seed by the easy-working catchers, and there seemed no bottom to the mine. This state of things attracted more and more men into the business of dredging seed and tonging marketable beds. All at once young oysters began to be hard to get, and the increase seemed to be almost at an end. The young men had little knowledge of the great armies of infant mollusks which the old men had seen speckling the gravel beaches and rocky shoals all over the bay a few years previous. It began to be seen that if any oysters were to remain, none must be sold out of the bay, and all oystermen must hasten to organize beds and encourage growth. Then came the attempts at help from legislation, but the trouble was too deep for that, and the oystermen of the present generation suffer a scarcity that their grandfathers would have thought it impossible should ever occur.

EXTENT OF OYSTER-INDUSTRY AT THE PRESENT DAY.—Nevertheless, the beds are not exhausted yet, as is evident from the great fleets that spring and fall operate to advantage in the waters between Moriches and Blue Point. I suppose that no less than 500 sail-boats spend their time on the bay at these seasons in gathering seed, carrying it away, and buying it for outside planters. To every one of these 500 sail-boats, mainly well-built sloops and cat-boats, three men may be counted, so that 1,500 men are probably employed in this industry alone at these times. How much seed is procured each season—the fall of 1879 or spring of 1880, for instance—it is impossible to state; but I should judge it to be not less than 100,000 bushels, or twice that amount for the annual yield; yet the amount is not large enough to supply the demands of the South Shore planters, who were compelled to bring in last year (1879) about 100,000 bushels of seed procured in the Newark bay, the North river, East river, and New Haven, Connecticut. This estimate is too small, if anything.

DISPOSITION OF SEED-OYSTERS: PRICES.—The poorer seed caught is sold to a great extent in the rough—stones, shells, dead stuff, and all—just as it comes up, since on much of it there is clinging "spawn"; that is, young oysters too small to be detached. For this 25 cents was the ruling price last year. Much, however, is culled, boys going in the boat and picking the tongfuls over as fast as they are poured out upon a board, which is placed across the middle of the skiff, from gunwale to gunwale. For this from 40 to 60 cents is paid. The buyers are planters at Bellport, Patchogue, Blue Point, Sayville, and the towns farther west, and occasionally a man from Rhode Island or Connecticut, who wants this seed to work up into a particular grade on his home-beds. Count Pourtales mentions something I did not learn of in this connection, namely, "a class of men intermediate between the fishermen and the marketmen. They use sloops and small schooners, and buy up from the oystermen the produce of each day's fishing as they come in at night. A basket hoisted to the masthead is the signal indicating a wish to

* This seed, however, makes the hardiest and most preferred oysters for the European trade, and is much sought after.

purchase." This looks as if he referred to the well-known *packers*, of whom I shall speak later; but he shows that, partially at least, it is seed they buy, for he continues: "The price paid at the time of my visit was about 60 cents a bushel for all sizes and qualities mixed. These oysters are carried to Rockaway, Hempstead, and other bays near the west end of Long Island sound, near Captain's island, where they acquire rapidly a better appearance and flavor. The men who simply carry them there to resell to planters, realize a profit of 15 cents a bushel for freight."

SCARCITY OF SEED AND INCREASE OF PRICE.—The insufficiency of native seed to supply the cultivated beds, complained of this year to a greater extent than ever before, is to be traced mainly to the cause which might long ago have been anticipated, and which has before been so ruinous to our oyster-interests—over-fishing. So long as oysters are permitted to grow for a proper time—say till they are four or five years old—before they are raked up for market, so long will they, in favorable places, increase with a rapidity that it would hardly be possible for a scarcity to occur. To an extent safe against ordinary demands, the more an oyster-bottom is "tonged" the more stock will be found. This is due to the fact that constant raking stirs up the bottom, rinses off the shells and gravel there, and so prepares it to receive the floating spawn. But here in South bay the oysters gathered for market-use are exceedingly small, many of them not larger than a silver quarter. They have not yet spawned, in most cases, and hence their removal is like digging plants up before they have left any seeds behind; it is destroying the root as well as the branches of oyster-growth. The seed imported from outside the island is of a different quality, if not inferior—two opinions exist on this point—not producing stock of precisely the flavor esteemed most highly on the South shore, and to which the original Blue Point and Oak Island bivalves owe their high reputation with epicures. Moreover, where formerly seed was to be had for the catching, or bought at 10 to 20 cents a bushel, 30 to 60 cents must now be paid for it. Such an outlay at the beginning makes an increase of the selling-price necessary. The shippers are loth to give the increase, since they do not see wherein the profit will return. Lately, indeed, money has been lost rather than made on oysters from the south side of Long Island, at least upon those grown at the eastern end of the bay, whence the stock is almost wholly sent to Europe. The question, therefore, as to the best way to restore the natural beds to their ancient productiveness, or whether it is possible to induce the formation of new seed-banks, is a very important one in this locality, and I endeavored to collect all possible information bearing upon it.

REMEDIES FOR THE EXHAUSTION OF THE SEED-SUPPLY.—To begin with: It appears that there has been no season when there was a wide-spread and abundant catch of spawn and successful growth of young oysters in Brookhaven bay since about 1870. In 1872, it is said to have failed altogether. Every year, however, there is more or less spawning observed, and it is the belief of the baymen, that every fourth year this exceeds in quantity the intermediate three years; but the misfortune is that the spawn seems, year after year, to go to waste, or, if it attaches itself at all, to be killed by the winter-storms, which stir up and shift the mud of the too shallow bay, or by some other accident.

It is my opinion, however, that nothing like the required number of adult oysters exist, undisturbed, in Brookhaven bay to supply naturally sufficient seed to keep pace with the accidents of bad weather and the fall-raking. It is a well-known fact, that the oysters upon the transplanted beds do not propagate successfully. Though all the surrounding circumstances seem favorable, the shock they have sustained in being transplanted, or some other reason, limits their spawning; and if they do emit eggs, there is usually nothing near by for them to catch upon. It is to the wild oysters, then, that the planters must look for the annual renewal of the seed-beds. They are few in number, and every circumstance is against them.

One source of trouble lies, I believe, in the laws intended to be beneficial, which, perhaps, present the only difficulty in the way of an entire restoration of the old productiveness. I consider that the prohibition of dredging is bad policy; that, on the other hand, dredging should be permitted all the year round, at least half of each week. It seems to me, also, that beneficial effects would follow the opening of the beds to free-fishing in summer, dredging included, and the closing of them, at least for a few years, from the 15th of July until the following spring, say up to March 1. The reasons for this have been indicated in previous chapters. The continued raking and dragging of the ground in summer, spreads and thins the thicker beds, keeps the bottom clean, and prepares the shells, gravel, and scraps there for the attachment of the spawn, by turning over and rinsing them, and this at the very time most necessary, when the oysters are spawning and the eggs are making their brief floating search for a foothold. But having thus been provided with resting places in abundance, over a continually widened area, it is necessary that the disturbance immediately cease and the young oysters be permitted to rest entirely quiet, until they have become strong enough to withstand the shock of change to new, private beds. This will not occur until they are at least six months old. The present custom of seed-gathering in the fall saves that which is a year old, but it ruins an enormous quantity of small seed of the year only three months old, which has not grown to sufficient strength to withstand the change. I believe that the only seed which should be removed from its birthplace in the fall, is that which catches on gravel beaches between tide-marks or elsewhere, where it would surely be killed by cold during the ensuing winter; and that the abundance the succeeding spring would more than make up for the apparent loss of the opportunity at present made use of. If such a course as this were deemed impracticable, then would it not be well to adopt a system of raking one part of the bottom one year and another

the next? Perhaps not more than a single year's interval would be required; but I should hope that only a third of the bottom might be raked annually, so that each bed would have two years' rest between times.

The general characteristics of the Great South bay having thus been mentioned, it remains to describe particular districts, and offer such statistics as I have been able to collect.

BELLPORT AND MORICHES.—The most eastern point at which any oyster-operations are conducted on the south side is Bellport, and there they are only begun. East of this, in Moriches bay, seed beds exist—there are no oysters in Shinnecock bay—but at Bellport land is now being staked off and planting has begun. Bellport planters will have the advantage of the best and hardiest seed close at their own doors, but are three miles or more from the railway.

PATCHOGUE AND VICINITY.—The next point is the important town of Patchogue, the center of the Brookhaven bay interests. More than any other of the thriving towns on the south shore, it owes its existence to the bay, but has distanced them all in point of size. Every other man you meet is a captain, though the craft he commands is rarely better than a sloop. With few exceptions, to be born and bred here means to be a bayman, and a curious result follows socially. The women of the village know a vast deal more than the men. As soon as a boy is old enough he is sent to school; but by the time he gets acquainted with the manners of the school-house, he has become big enough to "go cullin'" in an oyster-boat, and that is the end of his education. Henceforth he sits in a skiff on the bay and assorts oysters, until he is old enough to handle a pair of tongs, when he "goes tongin'" until he dies or has energy and savings enough to become a buyer and shipper. The alternatives to this are to go to New York to seek his fortune, or to become a clerk in a village shop. The girls, on the other hand, stay in school long after their brothers are taken away. They are pretty—that goes without saying—and healthy, because nobody is anything else down here, and are acquainted with fashion through seeing so many stylish people in the summer. Then they admire the honest, rugged frame and heart of a bayman, marry him, and become his confidential clerk in business.

The chief business of the bayman at this eastern end, is the catching and cultivation of oysters, and there are about 1,000 acres of bottom under cultivation in front of the town. This area includes all the coast from Patchogue to Bayshore, thus taking in the settlements and railway stations, Bayport, Youngport, Blue Point, Sayville, and Oakdale. A part of these lie in the town of Islip and the rest in Brookhaven, and thus come under slightly different regulations, but otherwise they form together a homogeneous district, and the oysters they raise go to market under the general brand-name of "Blue Points". The artificial beds upon which these oysters grow are all near shore, and in water rarely more than two fathoms deep, and often less. The bottom varies, but, as a rule, consists of mud overlying sand. The preference is in favor of water 6 to 10 feet in depth, which is deep enough to escape ordinary gales, and is not too expensive to work. The oysters fatten better there than in shoaler water, one planter said. The seed consists of the native growth, eked out by cargoes from New York bay, the East river, and elsewhere. The experiment of planting Virginia oysters as seed has proved a failure. The result is a shell which grows closely to resemble the natives, but the moment the oyster is opened the difference and inferiority of the meat is apparent, both to the eye and the taste. It has therefore been discouraged. Southern oysters will survive the winter in this bay, grow, and emit spawn; but most planters consider that they tend to reduce the quality and price of the native stock, and hence have almost ceased to bring any. To raise and sell them as "Virginias" would not pay, since this region cannot compete with Staten Island. Whether native or outside seed grows faster is another undecided question, but all whom I asked said they preferred to plant all home-seed, if possible, on general considerations. The differences in the experiences related to me are no doubt due to the differences in the particular localities whence the seed was brought. It is generally understood that oysters taken from the eastern to the western end of the bay grow more rapidly than those not changed. Count Pourtales remarked upon this district as follows:

> These beds produce oysters of different qualities, according to the locality; the cause of the variation is not known, but depends probably on the density of the water, supply of food, etc. The oysters grown on the beds are called bed-oysters, by the fishermen, to distinguish them from the broken-bottom oysters. The former have generally a rounded shape; the second, which grow in scattered bunches on broken or muddy bottom between the beds, assume an elongated or spoon-shaped form, evidently produced by their tendency to sink in the mud by their own weight as they grow. The beds have probably originated in the same way, as the tongs bring up from them frequently old and very large spoon-shaped shells of oysters, such as are not now found living there. The broken-bottom oysters have a much more rapid growth than the bed-oysters, being two or three times as large as the latter at the same age. The greater supply of food will no doubt account for it. At the same time the meat is more watery and held in less estimation until after it has improved by planting in other localities.

The ordinary amount of small seed put on an acre is 500 bushels, chiefly laid down in the spring. In the fall the owner goes over them and thins them out, finding a great many which are large enough for market, though no bigger than a silver dollar. The rest remain down longer, and meanwhile constant additions of seed are made alongside.

BAYSHORE.—As you go westward to the extremity of the "Blue Point" district, in the neighborhood of Bayshore, you find a feeling of discouragement. The oysters there do not grow as fast or become as finely flavored as those to the eastward, and all the seed must be bought or poached stealthily from Brookhaven. Large quantities of ground there, which may be procured in four-acre lots at $1 a year rent per acre, are not taken up, although with the help

of capital it might be made productive, and there are very few out of the many planters in Bayshore who depend to any considerable degree upon their oyster-beds for their support, even if you add to this the profits they derive from clamming.

THE USE OF "STOOLS" TO RECEIVE OYSTER-SPAT.—Following the lessening product of the seed-beds and the increasing appreciation of the oysters of this region, attention was turned some years ago to the possibility of saving a portion of the wasted spawn with which the imagination filled the waters of the whole bay, by giving it suitable "stools" upon which to rest.

It has been the custom, therefore, for several years in Brookhaven bay, to spread down shells, scrap-tin, and other cultch, in hopes of catching a quantity of oyster-spawn and so getting plenty of seed. This seems to have succeeded just in proportion to the contiguity of mother-oysters to the receiving-bed, and the success has generally been so uncertain, that no great dependence has been placed upon this source of supply, nor has the practice been systematically engaged in, as at New Haven and Norwalk. The experience of Mr. King Benjamin, of Sayville, for instance, may be given as that of the average planter in this respect. He told me that it was his custom to spread his shells at the middle of the spawning season, which here comes early in July, where the tide-currents were tolerably swift, and spread them lengthwise of the current. Then across the tide, near the middle of the bed, he puts a rank of spawning-oysters from the North river, and has rarely failed for ten years past to get a good set to a distance of 15 or 20 rods, but no further. The risk now begins, and it is rare that any considerable quantity of the seed so caught survives the breaking up of the winter, when the ice goes out and the northeast gales churn up the bottom of the shallow bay. A large proportion of all the oysters, large and small, in Brookhaven, which have lain in health all winter, are destroyed every spring. This is one argument used to sustain the propriety and profit of fall-raking for seed.

The spreading of shells, without placing among them mother-oysters, is steadily practiced, in the hope of some day catching a fortune, but up to this time this practice has hardly repaid the small expense incurred. On the other hand, in spite of ill-luck, those planters who have worked more cautiously, placing spawners among their shells instead of trusting to chance, have got plenty of young. There seems no reason, therefore, why the race of "Blue Points" should become extinct for loss of seed, and no doubt a more urgent necessity than now exists will introduce into that locality the better methods of saving spawn and safely raising the young, which are surely possible. At present it is preferred to purchase seed of natural growth, or of somebody else's raising.

That the Brookhaven men consider the putting down of stools worth the effort, is evinced by their petition to the town-authorities in May, 1880, for additional ground for this purpose on the southern, and as yet, useless shore of the bay. After long discussion, this petition met with the following response, which opens a new field of industry to Patchogue, which there is every reason to suppose will prove of profit. The town decreed as follows:

> Whereas, there is a large portion of the South bay adjoining the South beach which is clean sand-bottom, and could be made available for raising seed-oysters by the spreading upon said ground shells for seed to catch upon, thereby making the flats and shoal-water ground productive to our citizens, and an increased revenue to our town: Therefore, be it
>
> *Resolved*, That this board of trustees lease four acres of such ground to the west of Blue Point and east of a line drawn south from Munsell's landing, to any citizen of the town of Brookhaven, for the purpose of propagating and raising seed-oysters thereon, whether a lot for growing oysters in said bay has already been leased to him or her, or not, at the annual rent of $4 for the term of one year, with the privilege of renewal annually for nine successive years thereafter, and on the other conditions upon which the board of trustees are now granting leases for the purpose of growing oysters.

OYSTER-VESSELS AND OYSTERMEN AT EAST END OF GREAT SOUTH BAY.—The fleet and the number of persons supported by the oyster-industries of the eastern end of the Great South bay are very large, but it was impossible for me to get exact statements in respect to either. At Patchogue and neighborhood, however, an estimate of 250 boats was concluded upon after much inquiry. Eastern Islip will add to this 200 boats, and the shore from there westward to Bayshore from 100 to 150 more; say the lesser number. All of these boats are sloops or cat-rigged, and are of good size and quality, so that they will range from $600 to $1,600 in value. The minority, however, are of the more expensive pattern, and about $750 would probably fairly cover the average value. This would make the 550 sail-boats, built for the oyster-business and used from two-thirds to the whole of the time in that business, owned from Bellport to Bayshore, represent a present cash value of about $425,000.

In addition to this must be counted, say 500 skiffs, worth, perhaps, $25,000. It is probable that $50,000 more would not more than cover the value of ground, sheds, implements, packing-tools, etc., required, so that the floating property of the oyster-planters from Bayshore eastward to Bellport, concerned in that business, must be estimated as high as half a million of dollars. This, however, is distributed among about 600 planters, 400 of whom live in Brookhaven and the rest in Islip. These are all, supposably, heads of families, and they employ, or otherwise support, perhaps 600 more men and boys to help them in the busy season, half of whom thus support families. It may thus be said that in Brookhaven 600 families, and in Islip 300—total 900—derive their sustenance directly or indirectly from oysters, though most of them, at the same time, are, to a considerable extent, farmers, or fishermen, or both.

YIELD OF BLUE POINT OYSTERS IN 1879–'80.—The past year (1879–'80) has been a very poor one, both

in respect to quantity and quality, for Blue Point oysters, both the amount sold and the price received being small. The crops gathered at the different ports were approximately as follows:

| | Bushels. |
|---|---|
| Patchogue to Blue Point, about | 55,000 |
| From Oakdale, about | 80,000 |
| From Sayville, about | 60,000 |
| From Bayshore, about | 20,000 |
| | 215,000 |

About half of these were sent by rail, and the other half, or a little more, by water-sloops sailing to New York with loads of barrels. This traffic is very important to the railway, and the water-competition has served the shippers the good turn of keeping freight-charges at a low figure, particularly as there were many advantages to be gained in shipping by boat. The average receipts by the railway, per bushel, for oysters transported in 1879, to New York, from all stations on the Great South bay, was between 8 and 9 cents.

EXPORTATION OF "BLUE POINTS" TO EUROPE.—The principal market for "Blue Points" is now, as for some years past, for the European trade. Their superior flavor, round, thin shell, and small size, commended them when this shipping business was first begun, and they have retained their supremacy over all other brands, until the unfortunate season of 1879, when they proved so poor that the "Sounds" beat them in the estimation of the epicures abroad, and money was lost by shippers on Long Island. Another unfortunate thing which detracted from their success, was an attempt to substitute southern oysters, nurtured for one season in the bay, for native "Blue Points." As has been said before, the southern seed takes on in growth so close a semblance to the genuine Brookhaven product as to deceive any but the most expert eyes, so far as the *shell* is concerned; but the meat never looks nor tastes so well as that which is imitated. On this account, the leading shippers looked upon the advent of Virginia oysters to the bay with some anxiety, fearing that weak-kneed or unscrupulous persons would some day foist the imitation upon the London market, under the brand of genuine "Blue Points."

One day an agent of one of the New York houses suspected that such an attempt was being made, but could not easily verify it. At the station, however, while the suspected barrels of oysters were being placed upon the freight cars, he procured an opportunity, unobserved, to look at their contents, and found them nearly all "Virginias" mixed with a few natives. He telegraphed at once to his principal in New York, who forwarded a cipher dispatch to his agent in Liverpool. That merchant gave a hint to the customs authorities, and a watch was kept. When the adulterated consignment arrived they were seized by officers, their inferior character proved, and the whole stock confiscated; moreover, the agents of these people in Liverpool were arrested, charged with fraud in selling food under a false label, which is an offense visited with heavy penalties under the English law, and they only escaped through the intercession of American oyster-dealers there, who explained that the shippers probably thought southern oysters laid down in Blue Point waters might properly pass as "Blue Points." Such a construction is plausible, but the inferior nature of the stock was well-known nevertheless, and would have tended to injure the reputation of these fine oysters irretrievably.

Mr. George H. Shaffer, of New York, one of the pioneers in shipping to Europe, preferred "Blue Points" at first, and has continued ever since to be a very large buyer of them. To the kindness of his agent at Patchogue, Mr. More, I am greatly indebted for assistance in my investigations. Mr. More and all his brother-agents are known as "packers". They are very busy men, traveling along the shore every day, in all sorts of weather, and striving against one another in the purchasing-boats for friendly advantages. Each packer has a sloop and crew with which he cruises on the fishing-grounds. That he has come to their vicinity, and is ready to purchase, is known to the oystermen by the signal of a basket hoisted at his masthead. They row up to him, measure out the "tubs", each of which holds two bushels, and receive their cash-payment on the spot. Several thousand dollars a day are thus disbursed in this region all winter through. When this market-boat is full she makes for the shore and lands her cargo in her owner's shanty, which, firmly secured against the wind and banked up with sea-weed, occupies a place just out of reach of the tide on the sandy beach. Here the oysters are "culled": that is, assorted into three sizes. The largest ones, of small amount, are reserved for the home trade, while the two small sizes are snugly packed in barrels, well shaken down, to be sent abroad. The barrels used are old flour-barrels, supplies of which are sent down from New York, and they will hold a scant three bushels; but in the course of packing, discarding and waste occur, until it is estimated that every barrel of Long Island oysters sent to Europe represents fully four bushels taken from the beds. I presume the same will hold true at Perth Amboy and elsewhere. The residue of the packing, big and little, the packer throws overboard upon a plot of ground reserved for the purpose, near his house, whence he occasionally takes up such as are suitable for market, so that really there is little waste.

ADVANCE-CONTRACTS FOR OYSTER-CROPS.—The system of contracting for a planter's crop a season ahead, has been followed here by the packers to considerable advantage. The planter judges what he will be able to rake or procure from his neighbors during the winter, and contracts to deliver so many barrels to the shipper at such a price. Last season was disadvantageous for the contractors, owing to scarcity of stock, but as a rule they have done fairly well. The packers also sometimes advance capital to a man with which to start an oyster-bed, on condition

that he will sell only to them and share the profits equally. This sort of bargain is encouraged by the shippers, and a diligent man need never fear to undertake such an obligation, since it is bound to be mutually profitable, if properly conducted; yet many cases have occurred where the offer has been refused, for no apparent reason better than lazy shiftlessness. Indeed, it is an unfortunate characteristic of too many of these seemingly shrewd and certainly hardy and adventurous baymen, that they are contented with the small supplies of the happy moment, unwarned by past scarcity to provide against future suffering, and are as reckless of advantages which might be improved, as they are of saving the money in hand. To this indifference may be traced their slowness to experiment toward the improvement of their oyster-grounds, or the preservation of more of the vast abundance of spat which, they all believe, whether it is the fact or not, is drifting just under the steely-blue surface of their beautiful midsummer bay.

PRICES OF BLUE POINT OYSTERS.—The prices of Blue Point oysters have never been lower than at present; even a hundred years ago more money was paid for them than now, which shows the general public advantage of cultivation. During the season of 1879–'80, the prices paid the producers by the packers ranged from $1 50 a bushel for small lots of "best selected", to 60 cents for poor stuff. Much was sold at a dollar, but a fairer average would be 90 cents. Twenty years ago, according to Count Pourtales' report, "$2 to $3 a bushel" was the selling price. For those destined to form foreign shipments, from $3 50 to $4 a barrel was paid, the highest prices ruling near Patchogue, and the lowest westward. This was from 20 to 30 per cent. above the prices paid at the same time for the "Sounds", although the latter were better received and worth more in the English market than those costing more here. The profits in "Blue Points" and "East Rivers", therefore, were small, while those in "Sounds" were fair, if not large.

AGGREGATE VALUE OF BLUE POINT OYSTER-CROPS.—Multiplying the 215,000 bushels sold between Bellport and Bayshore ("Blue Points") by 90 cents, the average price, gives $193,500 as the approximate amount of money put into the pockets of the oystermen along a strip of about 20 miles of shore. Dividing this among 900 families (see page 104) gives an average of about $215 as the season's income for each. This takes no account of the two or three hundred single men, who earned $2 a day at oystering during a portion of the season, but a considerable part of whose earnings reverted to their employers or neighbors, in payment for board and supplies.

BABYLON: "OAK ISLAND" OYSTERS.—At Babylon the business of oyster-cultivation is comparatively a modern institution, though Messrs. Udall and Oakley, with some others, have been at it for ten years or more.

No natural oyster-beds are to be found in this town, or nearer than Brookhaven bay; nor have they ever existed, except that in the inlets and tideways through the beaches and marshy islands opposite the village of Babylon, as in the neighborhood of Fire island, occasional scattering patches of young sometimes "catch". Unless taken up the same fall, however, they rarely survive, and no dependence is placed upon this chance supply. Now and then a few at Oak Island will manage to live and grow. They develop a remarkably fine flavor and bring extraordinary prices in the market.

There are said to be about 1,000 acres of bottom belonging to the town suitable for oyster-culture, but only about 200 acres are at present improved. These are all alongshore and almost wholly around Oak Island, on the southern shore of the bay, since the central part of this broad, shallow lagoon grows full of eel-grass in midsummer, the bottom everywhere being muddy. The water is nowhere more than 6 or 7 feet deep at high-tide, and the larger part of the grounds are laid bare at low water. On this account there is great risk in trying to keep any oysters upon the beds through the winter, the ice often settling upon the beds at low tide, freezing fast to mud and oysters, and carrying both away when it drifts off upon the rising tide. The winter of 1878–'79 was destructive of nearly all the beds in this way. Such complete devastation is rare, however, and the winter of 1879–'80 was so mild that no harm was done. Men who cross to the beaches, shooting or wrecking in winter, often find a feast in the oysters which are frozen into the cakes of ice piled up on the shore, and these are the best, too, for the shallowest water produces the finest quality.

There are at Oak Island 30 planters, each of whom cultivates 4 acres under the special state law enacted for Babylon and Islip. This law, which, in 1878, was made to take the place of previous statutes, comprises several sections, and reads substantially as follows:

SECTION 1. Any person of full age, who has been an inhabitant of Islip or Babylon, Suffolk county, for one year, upon complying with the ensuing conditions, may "locate a lot not exceeding four acres in extent under the public waters of the Great South bay, in either of said towns, where the taking of clams cannot be profitably followed as a business", and shall have exclusive ownership.

SEC. 2. "For the purpose of ascertaining and determining what * * * portions of said bay may be taken for the purpose of planting oysters as aforesaid, a board of commissioners, consisting of two from the town of Islip and one from the town of Babylon, whose official titles shall be 'oyster-commissioners', shall be appointed each by the board of town-auditors * * * of his or their said town, respectively". They hold office one year, their appointment to be certified to by the auditors and filed with the town clerk.

SECS. 3, 4, 5. Each oyster-commissioner must take an oath of office and furnish a bond of $200 or more for the faithful performance of his duties; in case of refusal to serve, or vacancy, the auditors may appoint a substitute.

SEC. 6. It shall be the duty of said commissioners * * * to attend and examine the lot applied for, and ascertain and determine whether the taking of clams can or cannot be profitably followed as a business thereon; and if they shall determine that it cannot, then, and not otherwise, they shall locate the lot for him, which shall be clearly marked and defined. The commissioners must also secure maps and surveys of all ground allotted, and on all questions of boundary the decisions of the commissioners shall be final. On payment by

any applicant of the expense of locating his lot, which shall be determined by said commissioners, but shall in no case exceed the sum of $10 and the additional sum of $1 per acre as yearly rent, they, or a majority of them, shall give to such applicant a certificate * * * which certificate shall entitle the person named therein to the possession of said lot, for the purposes of this act, so long as he shall keep the said lot clearly defined in the manner so directed by said commissioners; but if such person shall neglect to plant his lot with at least 100 bushels of oysters and shells during the period of one year from the date of his certificate, or shall neglect to pay said yearly rent on or before the first day of April in each and every year, his rights to the possession of said lot may be terminated at the option of a majority of said commissioners. Certificates of this fact (as well as all other documents) must be made in duplicate and filed with the town clerk.

SEC. 7. Each of said commissioners shall be allowed the sum of $5 per day for his services actually rendered under this act, the same to be paid only out of the fund received for locating lots * * * and shall not receive any additional fees or compensation from any person or persons whomsoever; and each of said commissioners shall, at the usual annual auditors' meeting of said towns, account for and pay over all moneys in his possession * * * .

SEC. 8. It shall not be lawful for any person to retain possession of any such lot after he shall cease to be a resident of either of said towns of Islip or Babylon, but he may sell and assign his interest in any such lot to any inhabitant of either of said towns for one year; but no person shall acquire possession of more than one lot by purchase or otherwise.

SEC. 9. A penalty of fine not exceeding $100, or imprisonment not over 60 days, or both, is provided for taking or disturbing of oysters on such lots by unauthorized persons.

Of the thirty planters alluded to above, twenty-two have formed themselves into a protective association, and hire a watchman at $40 a month; but, in spite of this, complaints of theft are frequent.

The old way of planting at Oak Island was to buy small seed and plant it in the spring. The following autumn the bed was thinned out, and more than half of it taken up and sold, chiefly to planters from Rhode Island, to be laid down again. What remained grew to better advantage and was ready for market the following spring, if the ice did not haul it off before then. About 1870 seed could be procured in Brookhaven bay in abundance, simply by the trouble of catching, or could be bought for 10 to 20 cents a tub. About 1875 Mr. Edward Udall told me young oysters were so plenty off Patchogue and Smith's point, that a man could work profitably at 5 cents a tub. In 1877 he bought seed largely for 10 cents a tub, but in 1880 the same was worth 25 cents at Patchogue, and 40 cents when delivered at Babylon.

The growth of oysters transplanted to Oak Island waters is extremely rapid. They have been known frequently to double their size in a single season, and are often sent to market at the age of fifteen months; that is, the second fall after their birth. This rapidity of growth is attributed to the freshness of the water, but undoubtedly is due to the excess of confervoid and other food in the water. I know no place where it is more abundant; and it is quite possible that the fishermen are right when they attribute the circumstance that oyster-spawn never catches west of Nicoll's point, except around the mussel-beds in the inlet, to the great prevalence of slime in the water; for this "slime" is the vegetable and hydroid growth that furnishes so much nourishment to the adult oysters, and everywhere covers the bottom with a slippery growth and deposition.

The planting of southern oysters was tried here, but did not yield a profit, since a large proportion of the oysters died. They grew well enough, but few lived, the supposition of the oystermen being that the water is too salt.

Experiments have been made to a limited extent in catching spawn upon artificial beds of shells. When it has always been possible to buy Brookhaven seed at 10 to 20 cents, and secure in one or one and a half years' growth enough upon it to pay the planter from 75 cents to $1 a bushel, no other method was considered necessary. Now, however, there threatens to be such a scarcity of seed that shell-beds will probably be laid down extensively, and I see no reason why good returns should not follow.

The enemies to be contended with are the ice, as before mentioned; rare easterly gales of sufficient power to disturb the beds; the borers, which are on the increase, and two years ago nearly extinguished the beds opposite Sayville; and the common crabs. In respect to the crabs, I had not heard before that they were injurious, but was assured that immense damage by them annually happens to the young oysters on planted beds; one man losing 500 bushels in one week. This matter is more particularly discussed under "Oyster Enemies".

The Oak Island planters put down in 1880 between 15,000 and 20,000 bushels of seed, and their next crop will probably be a large one. This season, however, though their oysters were of superior quality, the amount was so small that not more than 2,000 bushels were sent to market. These chiefly went into the export trade, and were sold to Sayville shippers at $1 25 to $1 50 a bushel, which was a large advance upon the previous year's prices. There is a feeling of discouragement at this locality.

AMITYVILLE, SOUTH OYSTER BAY, FREEPORT, AND BALDWIN.—Going west from Babylon, the small producing points of Amityville and South Oyster bay are passed, and then you reach Freeport, where there is an old and extensive business in oyster-culture.

The beds opposite Amityville, the most westerly point on the Great South bay, are a new property, and as yet yield small crops. The situation seems favorable, however. There are ten or a dozen planters (and as many sail-boats), the principal of whom are the Messrs. Ketcham. They obtain most of their seed at present from the East river, and have now planted about 5,000 bushels. In addition to this, about 1,500 bushels of Virginia oysters were laid down this year. The crop reported sold last winter amounts to 2,000 bushels. "No drawbacks" is the encouraging report.

At South Oyster bay, four miles westward, a planting interest has grown up only of late. The name of the piece

of water and the village is derived from its being the southern part of the town of Oyster Bay, which owes its name to the ancient productiveness of its harbor, on the north shore, in our favorite mollusks. There are 22 planters here, 18 of whom are joined in an association for mutual protection. They rent ground under the laws of South Oyster bay, although many of the members are residents of Hempstead. They can each have as many acres as are wanted, for simply the trouble of staking out and recording. They have pursued a somewhat different course from their neighbors, buying this year (the spring of 1880) two-year-old seed at New Haven, which cost them 60 cents, put down. This they propose to take up and sell the succeeding fall, and expect by that time it will have doubled its size, so favorable are these grounds regarded for oyster-growth. These planters intend in future, nevertheless, to buy small seed, that is, when they can procure it at less cost and trouble than was possible last spring. I should think this locality ought to become a profitable oyster-depot.

Five miles westward of South Oyster bay lies the considerable hamlet of Freeport, where oyster-planting has long been followed in the shallow bay of the same name opposite the town, about 40 acres of bottom being in use. About 35 planters are engaged here, all of whom live at Freeport, and make a pretty prosperous village of it. Besides these 35 owners, probably 25 families get their living out of the trade, so that the industry is very considerable here. The method of cultivation is similar to that employed eastward, except that considerable seed is got at Staten Island and in the East river, but no southern oysters are planted. The crop last season amounted to about 30,000 bushels. It was of high quality, and brought an average price of about $1 35 in New York. Nevertheless the Freeport men complain of a poor business and dim prospects.

At Baldwin's, two miles west of Freeport, there are 18 planters, occupying an acre each of the bottom of Hempstead bay, an inlet separated from South Oyster bay by islands, and about as many more who find steady employment. These planters get seed mainly from the westward, and in 1879–'80 sold about 11,000 bushels at $1 50. They report their beds in "very fine condition" and their "prospects very bright".

At Christian Hook is a small business, also in the waters of Hempstead bay, in respect to which I was prevented by accident from getting and saving many particulars. I judge, however, that the business there is much the same as at Baldwin's, and, therefore, credit its productiveness at about the same rate—11,000 bushels annually.

## 37. THE ROCKAWAY DISTRICT.

TOPOGRAPHY.—At the western end of the south shore of Long Island is a series of interlacing channels, through a great marshy lagoon, protected outwardly by Longbeach from the rage of the Atlantic, and separated from Hempstead bay, east of them, by large islands. This confusing net-work of shallow, tidal creeks, ramifying in all directions through an immense expanse of sedge, lies on the eastern side of the township of Rockaway. West of the town spread the more open waters of Jamaica bay. In both these waters oysters are grown in great quantities; and as every village, beach, inlet, and channel in the whole region has the name Rockaway attached to it in some shape, it is not surprising that these oysters should take the universal name, too, in the New York markets, whither they all tend. The annexed map will show what an amphibious kind of region this is, and its relation to other localities.

HISTORY OF PLANTING: LAWS.—All of the planters live at the village of East Rockaway, and within a mile of it on the western side, and are a different class of men, socially inferior to the oystermen of the Great South bay. Though a large number are engaged, no one among them is an extensive dealer, three or four thousand bushels being the largest amount raised by any one man, while the majority of the planters produce less than 500 bushels a year.

The first planting was done here about thirty-five years ago, by Captain Samuel Pearsall and Mr. James Murray, as tradition relates. There were never any natural beds here, and they procured their seed at Patchogue, or wherever they could get it most easily. Nor were they particular as to ground occupied. Later, however, when the business became one of importance, special laws were enacted by the state of New York, at the instance of the towns of Hempstead and Jamaica, to apply to these waters. These legal regulations, which illustrate the selfishness of all oyster-laws, govern not only the Rockaway oystermen, but also those all along the shore from South Oyster bay to Fort Hamilton. They are as follows:

SECTION. 78. Exempts Jamaica and Hempstead bays from the "public waters" of Queen's county.

SECS. 79 to 87 are irrelevant.

SEC. 88. Persons for one year inhabitants of Jamaica and Hempstead, Queen's county, may plant oysters in the waters of those towns, as heretofore provided; but no person not a resident shall be allowed such privilege.

SEC. 89. Inhabitants of Jamaica and Hempstead can use three acres, but must mark, define, and make use of, as stated in section 79.

SEC. 90. "Before any person shall occupy any lands under the public waters aforesaid, for the purpose of planting oysters, * * * he shall prove to the satisfaction of the board of auditors of town accounts * * * that the land selected is not a planted bed of oysters, or, if planted, is not planted by any person other than the applicant, and shall also prove, by at least five reputable residents and freeholders of said towns [Jamaica or Hempstead], that he is, and has been for one year preceding, an inhabitant of the town. All the aforesaid proof shall be taken in writing, and signed and sworn to. Such board of auditors, or a majority of them, shall thereupon give to such person a certificate under their hands," embodying the facts stated above, which shall be filed with the town clerk.

SEC. 91. Persons obtaining and using oyster-ground in Jamaica or Hempstead shall pay to the supervisor of the town an annual rent of $5 an acre. This money shall go to pay current annual expenses of the town. Any oystering or clamming on ground so set apart, without authority of the owner, is forbidden.

SEC. 92. Penalty for taking oysters, or disturbing beds in Jamaica or Hempstead, $100, to be recovered by the owner.

SEC. 93. Defines process of arrest and recovery.

SEC. 94. Forfeiture ensues when the owner of ground in Jamaica or Hempstead waters ceases to use the ground for one year, or at the end of a year after he ceases to be a resident.

SEC. 95. Persons given until January 1, 1872, to remove their oysters from the waters of Jamaica or Hempstead, or to acquire new rights.

SEC. 96. Forbids dredging in the waters belonging to Jamaica or Hempstead, under penalties of $100 fine, or 60 days imprisonment, or both.

SEC. 97. Repeals the act of April 8, 1865, relating to this subject.

Under these closely protective laws the whole town, nearly, has turned itself into oyster-growers, and the coming generation are taking the beds their fathers leave. They pay into the town treasury of Hempstead about $900 a year, and into that of Jamaica about $400, which, at $5 an acre rent annually, shows that few of the planters occupy the three acres which they are permitted to. This is not for lack of room, however; plenty of good ground remains.

OYSTERMEN'S WAGES.—The total number of planters that one may count up in Rockaway varies from time to time, but there are not less than 150 constantly engaged, and devoting their whole time to their beds, except in midsummer. Besides these planters, properly speaking, there are as many more men who support their families by picking up the oysters that have drifted on to public ground from the planted beds, and selling them for market or for seed; who catch crabs, dig clams, and mend boats and tools, when not directly employed in assisting the planters make their beds or harvest their crops. It is particularly at the harvest-time that this help is employed, and the laborers receive from 20 to 25 cents a bushel for getting up and bringing in the oysters and culling them for market. It may safely be said, therefore, that 250 families, and many single men, in this village alone, obtain their support from the local oyster-industry.

METHODS OF CULTURE.—Rockaway men get their seed from Brookhaven and Newark bay, but prefer East river seed to any other, and use the largest quantity of it. It is brought to them in sloops. Rockaway itself owns few large sail-boats; its channels are too shallow and devious to admit of easy navigation, but every man has a skiff, and all the planters, flat planting-boats. Virginia oysters have been tried, but have never done well. Now none are planted. They say the water is too salt for them. The growth of Rockaway oysters is extremely rapid. The mud in the bottom of these marshy channels, which is only sufficient to hold the oysters from being smothered, seems to be full of nourishment, and the oysters are always large and fat. Some few men deal only in "box" size; but the majority of the planters sell, nowadays, much smaller oysters than formerly they were wont to, so that the average shipments now will run about 275 to the bushel. Lately, also, Rockaway has been able to contribute considerably to the European trade, selling what they term "French" stock, measuring from 1,500 to 1,700 to the barrel, and receiving $1 a hundred for it. I understand that these oysters have given very good satisfaction abroad.

MARKETS AND PRICES OF ROCKAWAY OYSTERS.—When Rockaway oysters first began to get a name in the city markets, they were sent there by the packet-sloops that used to run for fast freight and passenger traffic from the south shore to the metropolis, in rivalry with the lumbering stage-coaches on the shore, and brought about 75 cents a basket. When the war of the Rebellion cut off the southern supply, northern oystermen profited, and "Rockaways" were so good and regular, that at the close of the war they were worth $4 for ordinary stock at the boats, after which they were carted to the city in peddlers' wagons. This rate dwindled, however, very rapidly; yet Rockaway oysters have always held a good place, and last season were sold readily at $1 25 for small and $2 for the larger sort. The quality was unusually poor this season. The total quantity raised annually by this community, I estimate, after much study, at 100,000 bushels, judging that 700 bushels is the largest average permissible, and counting 150 planters.

NORTHWEST POINT.—On the eastern shore of Jamaica bay is a little oyster-settlement calling itself Northwest Point, which disposes of its oysters as "Rockaways". The beds here are in a swift tidal channel, where the water is shallow, and many beds are left bare at low tide. Here are from 40 to 45 families, chiefly supported by the business. Four or five of these are planters, raising from three to five thousand bushels annually; but the majority are small planters, who get from $150 to $400 a year out of their beds. They own here about 20 oyster-sloops, which do also a good deal of coasting, and in summer enter into the pleasure-excursion business at the beach hotels. The total crop of the locality, therefore, does not exceed ten or fifteen thousand bushels. Last year these were of poor quality, and were sold on the shore at $1 25 a bushel. As a rule, most of the oysters are taken by water to the foot of West Tenth street, New York, and there disposed of, generally to good advantage. Mr. Henry Wanser, to whom I am chiefly indebted for information, prophesied that the crop of 1880–'81 would be a good one in quality, because the mollusks had spawned early, and therefore had time left them to get strong and fat before the cold autumn weather began. He thought oysters must be in good shape by August 20, or they would not be good at all.

A few other planters are scattered singly about the shores, but they are of no importance, and cater chiefly to the hotels and local trade in summer.

GRAVESEND.—On the western shore of Jamaica bay is a small interest centering at Gravesend, in procuring an account of which I was greatly assisted by Mr. R. L. Van Kluk, postmaster of that village.

There are no natural oyster-beds in this region, except that a few bushels are caught every fall in Garrettson's creek, between Gravesend and Flatlands. Between Gravesend on the west and the western shore of Jamaica bay on the east, there are 22 or 23 planters, all of whom get their seed from Newark bay. This business and clamming, together, support about 25 families. Last season the crop amounted to between 15,000 and 20,000 bushels, sold in New York at an average price of $1 25.

STATISTICAL RECAPITULATION FOR SOUTH SHORE OF LONG ISLAND:

| | | |
|---|---|---|
| Number of planters and shippers | | 800 |
| Extent of ground cultivated | acres | 2,000 |
| Value of shore-property, about | | $25,000 |
| Number of vessels | | 170 |
| Value of same | | $136,000 |
| Value of small craft (800 boats) | | $100,000 |
| Number of men hired by planters or dealers | | 400 |
| Annual earnings of same | | $150,000 |
| Annual sales of— | | |
| I. Native oysters | bushels | 400,000 |
| Value of same | | $400,000 |
| Total number of families supported | | 1,200 |

## J. NEW YORK BAY. (EXCLUDING THE CITY OF NEW YORK.)

### 38. HISTORY OF OYSTER-INDUSTRIES OF NEW YORK BAY.

ALLUSIONS TO OYSTERS IN EARLY COLONIAL LITERATURE.—Among the riches of a new country enumerated to the Old World by discoverers, the products of the sea always have held a prominent place. They were not forgotten in the case of the shores of the island of Manhattan, the splendid river to which Hudson left his name, and the great bay where it finds entrance to the sea, and the bright expanse of which is the scene of the story of the present chapter.

The fishes of these waters attracted the attention of the earliest voyagers in a marked degree, and the mollusks—a part of them in popular estimation—were not neglected.

Whether the wealth of oysters would have been apprehended so speedily had it been necessary to "discover" the beds, is doubtful, though the fact that they then grew abundantly all over the edges of New York bay, and the entering streams—Shrewsbury, Raritan, Passaic, Hackensack, Hudson, and East rivers—must have been apparent to the most careless observer; but the explorers and colonists were saved any trouble in the matter, for the Indians were in the habit of gathering clams and oysters at all practicable seasons, and depended upon them largely for their food. In a poem by an early Dutch settler and poet, this very thing is celebrated, with seemingly strict attention to truthful details:

Crabs, lobsters, mussels, oysters, too, there be,
So large that one does overbalance three
Of those of Europe; and in quantity,
No one can reckon.

Then, as now, it appears that all the hard work of obtaining the delicacies fell upon the women. A quaint old book, written by William Wood, and published in London in 1634, entitled *Nevv Englands Prospects*, etc., contains a poem upon the kinds of shellfish, in which the following elegant verse occurs:

The luscious lobster, with the crab-fish raw,
The brinish oyster, mussel, perriwigge,
And tortoise sought by the Indian Squaw,
Which to the flatts dance many a winter's jigge,
To dive for cockles and to dig for clams,
Whereby her lazy husband's guts she cramms.

How greatly this molluscan abundance was valued by the first colonists, is plainly shown by frequent allusions in the early descriptions of the country. In 1621 "very large oifters" were too common at Nieuw Amsterdam to find a market, everybody being able to supply themselves without charge. A few years later (1671) Arnoldus Montanus speaks of "oysters, some a foot long, containing pearls, but few of a brown color", as one of the common advantages of the young settlement. Sir George Carteret, as one of the inducements in advertising the region about the mouth of the Raritan, where he wished to establish colonies, tells intending emigrants that "the bay [*i. e.*, of New York] and Hudson's river are plentifully stored with sturgeon, great bass, and other scale-fish, eels, and shellfish, as oysters, etc., in great plenty, and easy to take". This was in 1681. Three or four years later letters

were written home to England from what is now Perth Amboy, which are preserved in Smith's *History of New Jersey*, which bear out the truth of Carteret's assertions handsomely, as proved by these extracts:

And at Amboy point and feveral other places there is abundance of brave oyfters.

Oyfters, I think, would ferve all England.

We have one thing more particular to us, which the others want alfo, which is vaft oyfter-banks, which is the conftant frefh victuals, during the winter, to Engliſh, as well as Indians; of thefe there are many all along our coafts, from the fea as high as against New York, whence they come to fetch them.

Oyfter fhells upon the point, to make lime withal, which will wonderfully accomodate us in building good houfes [of stone] cheap, warm for winter, and cool for summer.

We have ftore of clams, efteemed much better than oyfters; on feftivals the Indians feaft with them; there are fhallops [scallops], but in no great plenty.

OYSTERS IN THE HUDSON RIVER AND IN THE "KILLS".—Just how far up the Hudson river this "store" of "brave oysters" extended is hard to determine. In his manuscript notes, furnished me with a liberality which his known regard for science and his native generosity would lead those who know him to expect, the Rev. Samuel Lockwood says, that five or six miles above Teller's point, near Sing Sing, is the uppermost spot "where they ever flourished". Captain Metzgar mentioned Rockland lake as the northern limit. The distance from here to Sandy Hook is no less than 50 miles, and all the way it was an almost continuous oyster-bottom. Bedloe's island, in the harbor, was first known as Big Oyster island, and some rocks and tide-bars south of it as Little Oyster island, the latter still keeping its name.

In the neighborhood of Staten Island the circumstances were especially favorable, and there were numerous beds. Staten Island lies in a mainly east and west direction, filling the southwestern corner of the bay; the northern shore is rocky and unfit for oyster-growth for a considerable distance, but the southern and western sides are eminently favorable. Between the island on the west and the contiguous shore of New Jersey, at Bergen and Elizabeth, the strait is narrow and was long ago called by the Dutch Kil von Kol, or the Kol, which has been corrupted into modern Kill von Kull, or shortly, the Kills. Everywhere in these swift tide-ways oysters grew abundantly. South of the island there is a broad expanse of shallow water separating the island from the Jersey shore of Monmouth county, into which the Raritan pours a heavy flood of fresh water. To the Staten Islanders and New Yorkers, this part of the bay is known as Staten Island sound, and the oysters grown in it receive the market name of "Sounds". Jerseymen more often speak of it as Raritan bay, and sell the oysters they raise on their shore as "Amboys" and "Keyports", the former town being the ancient village at the mouth of the Raritan river, and the latter, a modern town, several miles eastward. To the eastward of Keyport again, near the base of Sandy Hook, Shrewsbury river comes in, and here was another oyster-center, famous at one time, but now declined. The only other locality worthy of special mention is Prince's bay, on the southeastern shore of Staten Island.

FISHERIES AND LEGISLATION IN THE EIGHTEENTH CENTURY.—With reference to oyster-matters history is mute during the close of the seventeenth and beginning of the eighteenth century, except that chance allusions here and there show that large numbers of persons—nearly everybody in fact—took advantage of this natural storehouse of food to supplement their luxuries in summer, and victual their cellars for winter. It is also evident that the fame of Carteret's "great plenty and easy to take", had spread abroad, and so many aliens sailed into the placid bay to rake upon the "vast banks", that at last the colonists became alarmed for the continuance of their precious supply. Thus it arose that as early as 1715 was passed the first colonial law in relation to oysters, prohibiting—

That from and after the Publication of this Act, it fhall not be Lawful for any Perfon or Perfons whatfoever (Native Free *Indians* only excepted) from and after the firft day of *May*, until the firft day of *September*, Annually, to gather, Rake, take up, or bring to the Market, any Oyfters whatsoever, under the penalty of Twenty Shillings for every Offence, to be recovered before any of His Majefty's Juftices of the Peace, who are hereby Authorized and required to hear and finally Determine the fame, one half thereof to him, her or them, that fhall bring the fame to Effect, and the other half to the Poor of the place where the Offence fhall be committed.

And * * * That it fhall not be Lawful for any Negro, Indian, or Mulatto Slave to fell any Oyfters in the City of *New York*, at any time whatfoever, upon the penalty of Twenty Shillings for every Offence, to be paid by the Mafter or Miftrefs of fuch Slave or Slaves, to be recovered and applied as aforefaid. This Act to be [in] Force from the Publication hereof, during the term of Five Years and no longer.

Four years later (1719) the colony of New Jersey saw the matter in the same light, for the legislature resolved:

"WHEREAS, it is found by daily experience, that the Oyfterbeds within this Province are wafted and deftroyed by Strangers, and others, at unfeafonable Times of the Year, the Preservation of which will tend to the great Benefit of the poor People and others inhabiting this Province; BE IT THEREFORE ENACTED," etc.

The provisions were that no gathering of oysters should take place between May 10 and September 1, and that no oysters should be put upon any vessel or boat not wholly owned within the Province. For the enforcement of these acts special officers were named,* and legal provisions for seizure and punishment were arranged.

NEW YORK AND NEW JERSEY LAWS OF 1730–'75.—In 1730 New York again found need to make a second

* "The Perfons appointed being all dead it is thought improper to fwell the Volume by inferting their Names.—Laws, 1776.

law in respect to shellfish, and in 1737 a third, owing to the too great demand made upon the beds around Staten Island by crews of boats from New England, New Jersey, and elsewhere, special protective legislation for these waters was obtained from the colonial legislature. The preamble of this act of 1737, states the necessity for the law, "since it has been found by daily experience that the Oyster-Beds lying at and near Richmond County, within this Colony, are wafted and Deftroyed by Strangers; the preventing of which will tend to the great Benefit of the poor People and others inhabiting the aforefaid Colony." The Act therefore forbids any one "directly or indirectly, to rake, * * * any Oyfters within this Colony, and put them on board any Canoe, Periauger, Flat, Scow, Boat or other Veffel whatsoever, not wholly belonging to, and owned by, Perfons who live within the aforesaid Colony", under penalty of having the craft and all its contents seized. This law is almost an exact reproduction of the New Jersey statute of 1719. It then names ten citizens of Richmond county—many of whose names still figure in the oyster-business of Staten Island—as a police to carry out the law, and empowers them for that purpose. The method of condemning and selling the goods seized are then prescribed.

In 1775, New Jersey, finding that to have her beds and markets open till May 10, when New York stopped work May 1, did not work well, changed her close-day to May 1 also; and in addition a new provision was enacted, in view of the fact that "a Practice hath prevailed of raking and gathering great Quantities of Oysters with Intent to burn the same for Lime only, whereby great Waste is made, and the Oyster-Beds thereby in danger of being entirely destroyed". The penalties against an offender under this new law were very severe.

Both states made their laws somewhat in a spirit of mischief and retaliation, for Jerseymen then, as ever since, came in contact with Staten Island planters, often to the extent of mutual belligerency.

BEGINNINGS OF OYSTER-CULTURE, 1810–1835.—In spite of this protection, however, all the natural beds gradually gave out, and it was long ago found necessary to supplement them by artificial means. The precise date when oyster-planting began here it has been difficult to fix. Captain Cornelius Brittain, of Keyport, New Jersey, tells me, that his father was the first man to plant in York bay, about 1810. This was at Bergen point. Opposite his place, just below Bedloe's Island, was "Oyster Island", a flat covered by high water, where previously some natural oysters used to be got, but hardly within Captain Brittain's remembrance. Captain Benj. Decker, of Keyport, places the first bringing of Virginia oysters to Prince's bay at "55 years ago", that is, in 1825. Long before this, certainly as early as 1816, as I learn from a newspaper advertisement at that time, cargoes were brought to New York from the Chesapeake; at first, though, none were laid down to wait for growth.

As to native oysters at Staten Island, I was told that they were certainly cultivated in Prince's bay at least sixty years ago. In some localities on the opposite shore the industry is probably older, since a suit was brought about seventy-five years ago, in old Shrewsbury township, New Jersey, originating in the question, whether or not a man had exclusive right to the oysters he had planted. At Keyport, planting of native oysters is probably not more than forty or fifty years old; and at Amboy, according to report, it was not until fifty years ago that any beds were staked off.

The use of these waters for planting occasioned an immediate effect upon the villages of the neighboring coast which was very striking. "In fact," remarks a cotemporary chronicler, "the prosperity and rapid increase of the population of that island [Staten] is owing, in a considerable degree, to the oyster-trade of this city. Before Prince's bay was laid out in oyster-plantations there were very few persons living on it, and it was almost wholly uncultivated * * *. A few years after the first beds were planted an extent of coast of from five to ten miles was covered with oysters taken from the 'rocks' of Virginia."

The number of men employed upon the beds in 1853, and who lived upon the island, with their families, was computed at 3,000.

STATE LAWS FOR THE PROTECTION OF OYSTER-PLANTERS.—To encourage this new productive-industry, which had thus suddenly come into existence, New York and New Jersey both enacted laws calculated to protect the planters. They have been the object of much change and amendment, as experience ripened the judgment and new circumstances arose.

At present the laws of New York applying to this subject and locality are as follows:

*General statutes:*

Forbidding any natural bed being staked off for private use, or being planted upon; forbidding any person, not for six months previous a resident of the state, from taking any shellfish within the state (but an actual resident may employ any non-resident); and prohibiting the use of any dredge weighing over 30 pounds, or operated by steam-power.

*Special statutes:*

I. Asserting that no person not an inhabitant of the state may plant oysters in the waters surrounding Staten Island, "except the consent of the owner first be obtained"; and no non-inhabitant may take oysters or clams "from their beds of natural growth in any of said waters".

II. Forbidding dredging or dragging for oysters in the neighborhood of Staten Island "upon beds of natural growth of oysters (not planted)".

III. Forbids any person taking up or disturbing oysters planted under all the waters of this state surrounding Staten Island, without previous permission from the owners.

New Jersey's laws, applying here, are substantially similar:

I. No summer raking or sale of oysters allowed on public ground.

II. No dredging in any shape allowed.

III. No oysters to be gathered to be made into lime, or to be used in iron manufacture.

IV. No person, not a resident of the state for six months previous, may gather oysters or clams in state waters for himself or for his employer.

V. Any owners or licensed persons may plant oysters or clams upon any flats or coves (not natural beds) and one chain beyond the same, along the shores of Newark bay and Staten Island sound, under prescribed conditions of staking out, etc. A penalty is fixed for taking oysters without authority from such inclosures.

VI. Prohibits taking "from any natural oyster-banks or beds in this state any old shells other than such as cannot be removed or separated from the oysters without injuring the same; and all such shells shall be culled and thrown back again upon the said natural banks or beds"; but this does not apply to private beds.

LAW-MAKING: QUARRELS AND LITIGATIONS.—These laws grew up one by one, and at first were misunderstood and willfully disregarded on all sides. Between New York and New Jersey, in the persons of the Staten Islanders and Jerseymen, there were constant quarrels, and even open war, now and then, owing to alleged infringements of the vague boundary-line, by one party or the other. If one side thought they discovered that an oysterman from the opposite shore was placing his oysters within their waters, they felt no hesitancy or compunction in at once raking his stock up, claiming that he had no right to this ground, and consequently the oysters he had bought and placed there were public plunder. Arrests for larceny would follow, tedious imprisonments ensue, armed guards patrol the domains of the respective states, a few men get shot, perhaps, and much trouble to the whole community be caused. This state of affairs has not yet ceased; and I suppose it never will. The accusation was constantly being made, also, chiefly by the penniless and shiftless, against prosperous planters, that natural-growth ground had been staked off and was being used privately, to the detriment of the general welfare of the community. Then, too, there were plenty of persons who altogether disputed any rights of property in planted oysters, and failed by their conduct to recognize the law which said there *were* such rights. Nor, in northern New Jersey at least, was it until fifty years had elapsed after the laws relating to planted oysters had first been published, that the subject was finally and clearly settled by the supreme court. On an appeal from Cape May, tried in 1858, it was charged that Thomas Taylor had stolen oysters to the value of $18 from George Hildreth. This time the question of the right to oysters planted where there was no natural growth was reached and decided. The counsel for the defendant (Taylor) pleaded that "oysters being animals *ferœ naturæ*, there can be no property in them unless they be dead, or reclaimed, or tamed, or in the actual power or possession of the claimant".

The chief justice, in giving the opinion of the court, said:

> The principle advanced by defendant's counsel, as applied to animals *ferœ naturæ*, is not questioned. But oysters, though usually included in that description of animals, do not come within the reason or operation of the rule. The owner has the same absolute property in them that he has in inanimate things or domestic animals. Like domestic animals, they continue perpetually in his occupation and will not stray from his house or person. Unlike animals *ferœ naturæ*, they do not require to be reclaimed and made tame by art, industry, or education, nor to be confined in order to be within the immediate power of the owner. If at liberty, they have neither the inclination nor power to escape. For the purposes of the present inquiry they are obviously more nearly allied to tame animals than to wild ones, and perhaps more nearly allied to inanimate objects than to animals of either description. The indictment could not aver that the oysters were dead, for they would then be of no value; nor that they were reclaimed or tamed, for in this sense they were never wild and were not capable of domestication; nor that they were confined, for that would be absurd.

It was the decision of the court that the owner has the same absolute property in oysters that he has in inanimate things or domestic animals, and that an indictment would lie for stealing oysters planted in a public or navigable river, where oysters do not grow naturally, and the spot designated by stakes or otherwise.

On the other hand, courts decided that action does not lie for taking oysters claimed as planted in a common navigable stream in which others were found. The court seemed to consider the throwing of oyster-plants where there is a natural growth as an abandonment, and compared it to a man "who should take a deer in a forest and be simpleton enough to let it go again in the same forest, saying, 'this is my deer, and no man shall touch it;' it would never be asked by the next taker what was the intention of the simpleton; the very act of letting it go was an abandonment."

VIRGINIA SEED AND NATIVE SEED.—In early days Virginia oysters were more largely planted than now, except by a few New York dealers, and the beds of natives were supplied by seed found at home or at most in York bay, it merely being necessary to gather it up from the scattered spots where it lay or had "struck", and place it upon the private beds; the immediate waters of Staten Island or the neighboring coasts have furnished little or no seed. It is seventy years, I was told by Capt. Benjamin Decker—to whom I am greatly indebted for information—since any young oysters have "struck" along the southern shore of the island, in quantities worth getting. The great natural beds there and in the mouth of the Raritan and the beds off Shrewsbury, were exhausted years and years ago, and although now and then small deposits of young oysters are found in various parts of these waters, no reliance is

placed upon such a source of seed. Sixty years ago old oystermen remember working upon the "Chingora" bed, two miles below Keyport; and upon the then famous "State-beds" just at the Raritan river light-house. Now artificial planting covers both these banks. Fifteen years ago a bed of wild oysters was discovered down near the southwest buoy, and is supposed to have originated from spawn drifted across from Fort Hamilton, where the rocks conceal many oysters in their crevices. Since then small patches are occasionally found elsewhere. This sporadic growth seems entirely due to the native oysters planted in the sound, for during all the years previous that "Virginias" were planted in the greatest profusion, nothing of the sort occurred. Though the southern oysters would survive the winter, as a rule, and were even kept over two winters, when it was undesirable to sell them, they never spawned effectually, and are considered by the oystermen incapable of doing so, who attribute all the "set" which occurs anywhere in that vicinity to northern stock. I have had no opportunity of proving this, right or wrong, but am inclined to believe it true. This year a ruinously large proportion of the southern stock planted died.

I may mention, in this connection, that on the New Jersey shore much oyster-spawn "catches" every year in all the creeks, and a certain portion of it survives. A common experience is to find it attached to the sedges. By autumn such will become so heavy as to fall in the water, and the main part of it will die. What survives, however, will be as big as half a dollar, and are caught for seed. Enough remains, nevertheless, to tempt a few fishermen to return the very day the summer close-time expires, and rake again. What they get are "yellow as gold", and of extraordinary quality. These oysters are called "naturals", and are only enough to supply the home-tables for a few days, at extravagant prices. I see no reason why the judicious throwing of shells or other cultch in these creek-mouths would not save large quantities of this fine seed. It would be objected to by the populace, however, no doubt, on the plea that it was "natural ground"—an argument that might serve for any part of all these shores, which have occasionally been covered with the spawn along their whole extent.

The southern oysters that formerly made the chief business of these shores were variously known as "Virginia seed", "Chesapeakes", "soft", and "fresh" oysters. I restrict myself in the use of the word "seed", however, to the very small native northern oysters which were transplanted to private beds, and allowed from eighteen months' to two years' growth. The business was certainly very extensive for the condition of the oyster-market; nor has it yet more than declined, since probably 300,000 bushels are annually laid down even now.

METHODS OF CULTURE, PAST AND PRESENT.—The methods of work were and are not different from those pursued elsewhere in respect to southern oysters, and need not be redescribed in detail. Rappahannock and York river stock seems to have been preferred always in this district, and a large number of sloops and schooners ran each spring to and from those rivers. The crews of these vessels were not only native Jerseymen or Staten Islanders, but often Chesapeake men, who came up for a brief season's work, and then returned to their homes.

"They are required," says an account written in 1853, "in the transplanting of a bed, to heave the oysters overboard, to clean the bed about once a year, and perform various other work of a like description. The cleaning of the beds takes place generally every fall, and is accomplished by means of 'scrapers', singular looking instruments, somewhat resembling scythes, with this exception, that at one side of the blade a large bag, constructed of iron ring-work, like many purses we have seen, is attached. Into this all the scourings of the bed, cleaned off with the front of the blade, fall, and the whole is hauled up at regular intervals and deposited in the boat, to be afterward thrown into the current. In this manner the whole floor of the bed is scraped quite clean, after which it is considered fit for the reception of the oysters. The process of cleaning a bed is performed by the vessels under full sail. It is a very laborious task.

"The oyster companies have to pay about $1 a year each for the privilege of planting in a portion of Prince's bay, called Ward's point, which is regarded as admirably adapted for the purpose. As many as 1,000,000 bushels of oysters are scattered in this favorite locality yearly; but it is the only part of the bay for which the dealers are required to pay. Each company have their own ground marked out, and the whole space thus occupied extends over ten miles in length by about five in breadth. The depth of water varies from 8 to 25 feet. Besides the Virginia oysters, there are several other kinds planted in this bay, among which are the East river and Delaware oysters."

The war of the Rebellion interfered greatly with this industry, and had a great influence in turning the current of oyster-planting toward the cultivation of home-stock.

## 39. OYSTER-INDUSTRIES OF NEW YORK BAY, 1879–'80.

CULTURE OF TRANSPLANTED NATIVE OYSTERS.—Turning now to the consideration of the growing of transplanted native oysters, I find that this is gradually superseding the other (southern) planting, the objection to that being that, with higher prices at the south and lower selling-rates in the north, too many risks are attached to make it profitable. The planters of old, elated by their profits, which, during the war of the Rebellion were very large, over-crowded the grounds and each other, until the business nearly collapsed. The present revival in the line of growing natives is likely to prove equally profitable in a sounder way. But this planting of native seed-oysters in New York bay is an old industry. In 1853, for example, it was stated that there were at least 1,000 men employed in cultivating "York Bays" for the purpose of shipping them. "The hardness of their shell and the

peculiar saltness of the meat render them better adapted for shipping than any others, and they are, therefore, used almost wholly for the western trade. The boats employed in transporting them from the North river and Newark bay to the artificial beds are open, and are each generally manned by three or four men * * *. These men work in sloops and skiffs owned by themselves. The owners of each boat are also proprietors of one or more beds planted by themselves. There are about 200 boats, altogether, each of which is valued at an average of $800."

OYSTER-INTERESTS OF STATEN ISLAND IN 1853.—In reviewing the interests, during the same year, of the south side of Staten Island, whence came the "Sound" oysters of the markets, the *Herald* estimated the business as follows:

> From 150 to 200 men are employed in their cultivation, or in bringing them to market, and the value of the whole amount sold during the year does not exceed $50,000. The boats used in transplanting and in transporting them to this city are sloops and skiffs, or open boats, each being manned by three or four hands. The average value of each boat is about $200, and the whole amount of capital invested in the sound-trade, including boats and beds, may be estimated at $250,000.

It is added that one-third of all the seed planted at that time came out of the North river, from beds "which extend at intervals from Piermont to Sing Sing", where the growth was said to be exceedingly quick and abundant, but the oysters, especially those from the higher beds, of inferior quality, and wholly useless until transplanted.*

OYSTER-CULTURE ABOUT STATEN ISLAND.—The home resources along the shores of Staten Island, in York bay and the North river, having long ago been exhausted, or greatly depleted, the planters in Prince's bay and on the Jersey shore now get "seed" oysters, with which to stock their beds, wherever they can. The chief source is Newark bay and Raritan river, though the North and East rivers and Long Island sound are drawn upon. A considerable quantity of seed is brought from as far away as Fair Haven and Blue Point. In most cases the planters themselves gather what they use, by going after it in their own sloops, taking a small boat and a man to help. There is no reason why they should know precisely the number of bushels they cull out of their tongs and carry home, or why they should endeavor to calculate its exact cost. It would be difficult, therefore, for them to answer precise questions as to how much they got, or what it cost them, let alone how much they had upon their beds at a given time. For what they buy, from 30 to 40 cents a bushel was paid last season, to the many persons who made a practice of catching seed to sell. I may mention here an incidental custom.

Whenever the tides are especially low, there is a hurried concourse of people along the shore to pick up the mollusks, old and young, disclosed by the retreating flood, who work as far out as they possibly can. Such a general turnout is an interesting sight and an important fact to the planters, many of whose beds are bounded on the shoreward side by ordinary low-water mark. Though an extra low tide discloses grounds and beds of planted oysters legally held, the eager populace regard it as no infringement to pick up from such planted grounds, whenever they can reach them unobstructed. The truth is, this ground, occasionally exposed by the tide, is debatable territory, and the planters find it prudent not to contest the matter, but to be especially vigilant over their property, lest unscrupulous persons, of whom there are many, shall wade in to the beds and make a wholesale theft, under excuse of low water.

OYSTER-CULTURE AT KEYPORT AND PERTH AMBOY.—The seed usually gathered at Keyport and vicinity grows on soft mud and in sedgy places, and hence is long, slender, crooked, and ill-shaped. It is roughly culled on the boat, as soon as caught, and sold by the basket or bushel. Planted in from 10 to 15 feet depth of water, purer, salter, and upon a better bottom than before, it rounds out into good shape, and grows with considerable rapidity, in good seasons. The best bottom is a thin layer of mud overlying sand, and the best time for planting is in March, April, and May. As a total of the bushels of seed planted last spring, nothing better than an estimate is possible, and I consider the best way to make this estimate, is to consider that the crop, each year, is about equal to what is planted, the growth making up for the loss. I know the crop of northern oysters of the region under review amounts to about 250,000 bushels, which may also be taken to represent the amount of seed put on the beds. Multiplying this by 35, the average price per bushel, you have $87,500 as the total amount of capital sunk in stocking the beds. From 100 to 150 per cent. added, gives the amount of sales, after two to three years' waiting, and the expenditure of a considerable outlay in handling.

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* Before leaving this point, I may add an opinion expressed by the late Count L. F. de Pourtales, in a report to the Coast Survey, about ten years ago, in respect to the oyster-beds of the United States, regarding the North river. He wrote:

"Having been informed that oysters are obtained for purposes of planting, from the Hudson river, I visited Sing Sing, which had been indicated as about the highest point at which oysters are found. My visit was, unfortunately, after the close of the fishing season, the 1st of June; but I had the good fortune to be referred to the oldest fisherman of the vicinity, a colored man named Brady, at Sparta, from whom I obtained some valuable information. He had found oysters as high up as Cruger's, above Croton point, but they were subject to considerable vicissitudes there, being at times entirely destroyed by freshets or ice. From another informant I learned, that off Croton point there existed considerable beds of oysters, but all dead. According to Mr. Mitchell's observations, the specific gravity of the water at the bottom off Cruger's is 1.003 at the end of flood, and only 1.001 at the end of ebb. The best and largest oysters are now found in the deepest parts, 20 to 25 feet, but they are rather scarce now. Formerly they were abundant and grew close to the shore, where none are found now. This Brady attributed to the construction of the railroad skirting the shore—a plausible explanation—since the washing of the embankment must have produced a layer of mud, in which they have become smothered. The clearing of the forests in the basin of the Hudson must have had, also, a considerable influence in checking the growth of oysters by mud deposits. There is no regular business of oyster-catching as high up as Sing Sing, as the town laws prohibit strangers from taking oysters, and the inhabitants take only a few for their own use."

The method pursued in this region has grown to be careful and systematic, and furnishes employment to a considerable number of men not planters. In the spring, as soon as the weather gets fairly settled, the "natives", intended to be sent to market the following fall, are taken up from the place where they lie, culled over, and cleaned, if needful, and relaid, more thinly, on a new bed. Usually this is a movement from a soft to a harder bottom, and sometimes to a region of fresher water. At Perth Amboy, however, oysters shifted are placed further down the bay. It operates advantageously in two ways: by repressing the tendency to spawn, which is undesirable; and by giving them the benefit of a change of water and food. Moreover, on the sand they will tend to grow round and shapely beyond their ability to do so when crowded in the mud, while the fresher water will make them fatter. The actual result, nevertheless, is sometimes disappointing, particularly if there be no current over the new bed to bring a steady supply of fresh food.

The man who has only a few hundred bushels will do this "shifting", as it is termed, himself; but for the large planters it is usually done by a contractor, either for a lump sum or for an amount of pay based upon an estimate of the quantity, or at the rate of 10 to 15 cents per bushel, according to the density of the oyster-beds, and hence the time to be consumed. In either case the cost is about the same. One gentleman told me he paid $1,300 to have 11,000 bushels shifted under the first-named arrangement. While this is going on the southern cargoes are being laid upon the beds, and at Keyport a score or more of negroes, from Norfolk, annually appear as laborers, returning, at the end of the work, to their homes.

GROWTH OF OYSTERS IN NEW YORK BAY.—The growth of oysters transplanted to these New York bay waters is reasonably rapid, though not as fast as occurs in the Great South bay of Long Island. The usual expectation is to leave the beds undisturbed for three years, then shift in the spring and market in the fall. As planting of seed occurs both spring and fall, the crop of every year is thus the first of a series of six. All "naturals", that is, local oysters, planted, will outgrow foreign seed, doubling in size in a single season. This, manifestly, is because they suffer no change of locality, and do not need to become acclimated. The oysters from the sound, however, have been used largely for European trade for the last two or three years, and have acquired a high reputation. These do not require to lie three years, since they are wanted of small size.

Captain Benjamin Decker, whom I have quoted before, relates that some years ago he had a strange experience in this direction: a bed of oysters, which he planted at Keyport, doubled their size in a single month! "I sold these oysters in the New York market," he says, "and they sold well. The shells were so thin you could see the light through them. They beat anything in the market. The growth was wonderful. I sowed them thin, and yet they choked one another. I should think at least half of them died from this cause."

SUMMER REST AND AUTUMN WORK IN KEYPORT AND VICINITY.—By the end of May all work upon the beds ceases, beyond taking up an occasional boat-load to supply the weak summer-demand. The condition of the beds is watched closely, however, by the anxious owners, since it is the midsummer months that determine whether the oysters will report themselves "good" in the fall, or the reverse; which means a profitable business, or the reverse. If the season is hot, equable, and reasonably calm, all is expected to go well. Heavy storms and great freshets in July and August, on the other hand, produce thin and poor oysters, which will not bring a good price. The ill-success of the beds along the Keyport and Raritan shores last year is attributed to this cause.

Early in September the business of taking up the oysters for market begins. This is done by tonging, from small boats, near which a sloop anchors upon the bed, in which the men are quickly carried out and home again, and easily transport their load. Thus the larger part of the harvest is gathered, until the oysters become scarce upon the ground. Then a dredge is thrown over from the sloop, which cruises back and forth across the ground, until it is wholly cleaned up. Tonging over the side of a skiff is hard enough work, and requires sturdy, broad-chested men; but dredging is a still more terrible strain upon the muscles, when it comes to dragging the heavy iron frame and bag up from the rough bottom, and lifting it and its load over the rail on to the deck of the vessel. Many of the newer and larger sloops are now provided with a windlass, specially adapted to dredging, which relieves the crews to a great extent of the old hand-over-hand back-breaking labor. Drag-rakes are also used very frequently on these grounds, having very long, limber handles.

"GIVING THE OYSTERS A DRINK."—A sloop-load of oysters—from 200 to 800 bushels, according to the size of the boat—having been secured, the owner's next step is to "give them a drink". This he does by throwing them overboard, for a short time, in the fresh or partially fresh waters of some creek. The Amboy and Staten Island men find this largely in the vicinity of Rahway, New Jersey, where they lay their cargoes on the shore or sometimes in floats. The work is largely done by men belonging there, who are paid in oysters, receiving a bushel for about two hours' helping, which is usually what each master requires of them. The Keyport men have a little creek running through the town, which is crowded with floats, skiffs, and the implements of work. It is a scene of extraordinary activity, which may be witnessed here in autumn every day, as the oysters are being culled and prepared for sale.

The object of this "drinking" is to allow the oyster to become cleansed and freshened in taste. Finding themselves once again in the water, the oysters all open, and, as the men say, "spit out" all the impurities which are to be found clinging to the edges of the mantle and gills of a sea-oyster, just within the shell, and they do this at once, so that usually a single tide is a long enough time to leave them in the fresh water. Moreover, imbibing

the fresh water causes them to change in color somewhat, making the flesh a purer white; and it bloats them into an appearance of extreme fatness, which is very appetizing. Most persons believe this to be a true increase of substance and weight, but it is no more than a puffing up.

PICKING AND CULLING.—Before the oysters are thrown into the fresh water they are picked over somewhat, and the worthless stuff is thrown upon the banks of the stream—dead oysters, periwinkles, conchs, stones, and much other useless matter. Another more particular sorting remains to be done after the stock is taken from the stream, and before being sent to the city. This consists in knocking bunches to pieces and assorting into the various sizes known to the trade, and is technically known as "culling". All of the refuse-stuff resulting from these manipulations is heaped upon the bank, and is used to fill in low spots, or carted away to be burned into lime. Late in the fall this is terribly cold work. Nowadays the oysters are dipped out of the shallow water with forks, similar to the farmers' dung-forks, and the men wear rubber-boots that reach to their waists, but the old oystermen remember very well the winter terrors of the time before rubber-boots were invented and when they picked up the oysters with their fingers.

WINTER GLEANINGS.—The main crop has been gathered by the time Christmas is near, but many scattered oysters yet remain, that have escaped both tongs and dredges. The grounds are then given up to the laborers, who have been employed, during the summer and fall, and under a new impulse these men go over the grounds again with tongs and dredge. They work on shares usually, returning to the owner of the beds one-half of the results, which makes a really handsome thing for the gleaners, whose work, in this way, lasts from two to three weeks, making three or four days a week, each man often clearing as his portion from four to five dollars a day. At any rate, such generally is the practice, with its results, at Keyport, New Jersey, "where for many years the principle of the good old biblical rule, of not forgetting the gleaners, is almost religiously observed in the last gathering of this harvest of the sea."

NEW YORK OYSTER-LAWS.—At the principal ports of this oyster-region New York firms have agents who buy and pack oysters for shipment to the west, to Europe, to New York, or Philadelphia; city dealers also cruise about the beds in vessels and buy loads of stock from the various planters; and the planters themselves carry their stock to the New York market in their sloops, to be disposed of at the best advantage, or vie with one another in noisy rivalry in preparing the bivalves and getting them first to the steamboat for the city.

THE ALBANY OYSTER-MARKET FIFTY YEARS AGO.—A pleasing tradition has been preserved of the days long ago, before the oyster-business became organized into the commercial system, which now handles the enormous supply that finds its way into every county of every state in the Union. It is contained in the Rev. Samuel Lockwood's articles upon American oysters, published in the *Popular Science Monthly* for 1874. One of the great markets for oystermen forty to fifty years ago was Albany, New York. The sloops would sail up the river, and sometimes forty of them, loaded to the rail, would lie at the wharves of that city disposing of their living cargoes. From Albany, which also derived a large amount of oysters and clams from Fairhaven, at the same time, they would be taken back into the country in wagons, over the Erie canal as far as Buffalo, or sent northward by stage to Lake Champlain. If unsuccessful in selling to good advantage at Albany, the shippers would sail down and peddle their stock through the towns along the banks. Out of this arose the systematic practice which Professor Lockwood describes in the following paragraphs:

Before the railroad days, our oyster-growers used early in the fall to canvass the villages on the Hudson river for orders, to be filled just before the river should be closed with ice. The meaning of this is, that these men committed themselves to supply oysters in the shell, with the guarantee that the bivalves thus supplied should not die before their time came. The oysters were actually kept alive during the greater part of the long winter. The fat bivalves were handled with some care, and were spread on the cellar-floor, the round or lower side down, so as not to allow the liquor to escape.

That such a life required a great change of capacity or habit in the bivalves is evident; and it needed a training, yes, an education, ere the oyster attained to such ability. And this was the way it was done: Beginning early in the fall, the cultivator of the oyster took up the fat bivalves from their bed where he had planted them, and laid them a little higher up on the shore, so that for a short time each day they were exposed out of the water. After a few days of this exposure by the retreating tide, they were moved a little higher still on the shore-line, which gave them a little longer exposure to the air at each low tide. And this process was continued, each remove resulting in a longer exposure. And with what results? Two very curious ones: inurement to exposure, and the inculcation of a provident habit of making preparation for the same. What! providence in an oyster? Yes, when he's educated. When accustomed to this treatment, ere the tide retires, the oyster takes a good hard drink, and retains the same until the tide returns. Once, while waiting for the stage at a country hostelry, we overheard the following between two rustic practitioners at the bar: "Come, Swill, let's take a drink!" "Well, I don't know. Ain't dry myself. Hows'ever, guess I will take a drink, for fear I *might* get dry!" With better philosophy on their side, these educated oysters, twice in every twenty-four hours, took their precautionary drink.

The French method of oyster-training is much more laborious. The adult bivalves are carefully spread out in the water, and periodical lessons are given to each one individually. Each oyster, on this occasion, receives a tap, not with a ferule, but with a small iron instrument. This causes the bivalve to close tightly. Finally the last day comes with its last premonitory tap. Its education thus finished, it takes passage, with its fellow-graduates, for Paris. As a result of its education, it knows how to keep its mouth shut when it enters society!

PRICES OF OYSTERS, PAST AND PRESENT.—The prices reported as received for oysters in 1840, did not greatly differ from the present figures; they were:

| | |
|---|---|
| For the poorest | 50 cents per bushel. |
| For "Cullens" | $3 50 to $5 00 per 1,000. |
| For "Big ones" | $7 00 to $10 00 per 1,000. |
| For "Extras" | $15 00 to $25 00 per 1,000. |

Virginia oysters sold for about 20 per cent. less than the above-given, which were all "hard", in the parlance of the period.

During the war of the Rebellion, when the southern fields were cut off from the northern markets to a great extent, the Staten Island planters reaped a rich harvest. Their beds were unusually productive, and the prices were double what they now are, in many cases. At present the receipts are about the same as have prevailed for several years, except that the season of 1878–'79, following upon a period of financial depression, and characterized by misfortune in the growth of the mollusks, showed lower rates paid than ever before or since. Prices depend largely upon the quality of the different beds, and vary with localities. Virginia oysters from Prince's bay are considered the best. Of natives, those grown in the sound are favorites; these supplied a large part of the shipments to Europe in 1879–'80, and gave better satisfaction than any others sent. Perth Amboy and Keyport were the packing-points. The prices received by the planters for the different kinds of Staten Island oysters last year (1879) were from 10 to 20 per cent. less than the previous year, up to which time the price for a long time has averaged $1 per bushel, taking all grades and sizes together. In 1878, one man told me his whole crop averaged him $1 30 per bushel, but this was exceptionally good. In the fall and winter of 1879–'80, however, lots sold at $1 were rare, and the average price of "Sounds" and the best "Prince's Bays" (natives) did not average over 80 or 90 cents, while Tottenville oysters, with few exceptions, failed to come up to this even, 75 to 80 cents being reported for the most part. This will no doubt revive shortly.

In Perth Amboy, for the European stock, $2 to $2 50 per barrel was paid by the shippers; but this was called a very poor price, and, it is well known, proved highly profitable to shippers. For other oysters from 60 to 80 cents a bushel was paid for medium stock, and from $1 to $1 25 for larger, of which not much was sold; but the average probably would not exceed 90 cents.

In Keyport, for "bushels", 40 cents, $3 to $3 50 per thousand for "culls", and $6 to $7 for "box" size. A large number of Keyport's oysters go by rail to Ocean Grove, Ocean Beach, Long Branch, and other summer resorts on the coast.

DRAWBACKS TO OYSTER-CULTIVATION.—The visible drawbacks to oyster-cultivation between the East river and Sandy Hook, are not very numerous, but likely to be unforeseen and significant when they occur. One misfortune, however, to which the last remark does not well apply, is the fact that the sewage and waste pollution of the factories of Jersey City have so corrupted the shallow water along the Bergen shore, called York bay, as to ruin those planting grounds. At present the only way in which they can be utilized by oyster-growers, is to raise there large seed, which shall be taken elsewhere and given a year's growth and purification. Whether this trouble is exaggerated or not, I cannot say from personal experiment.

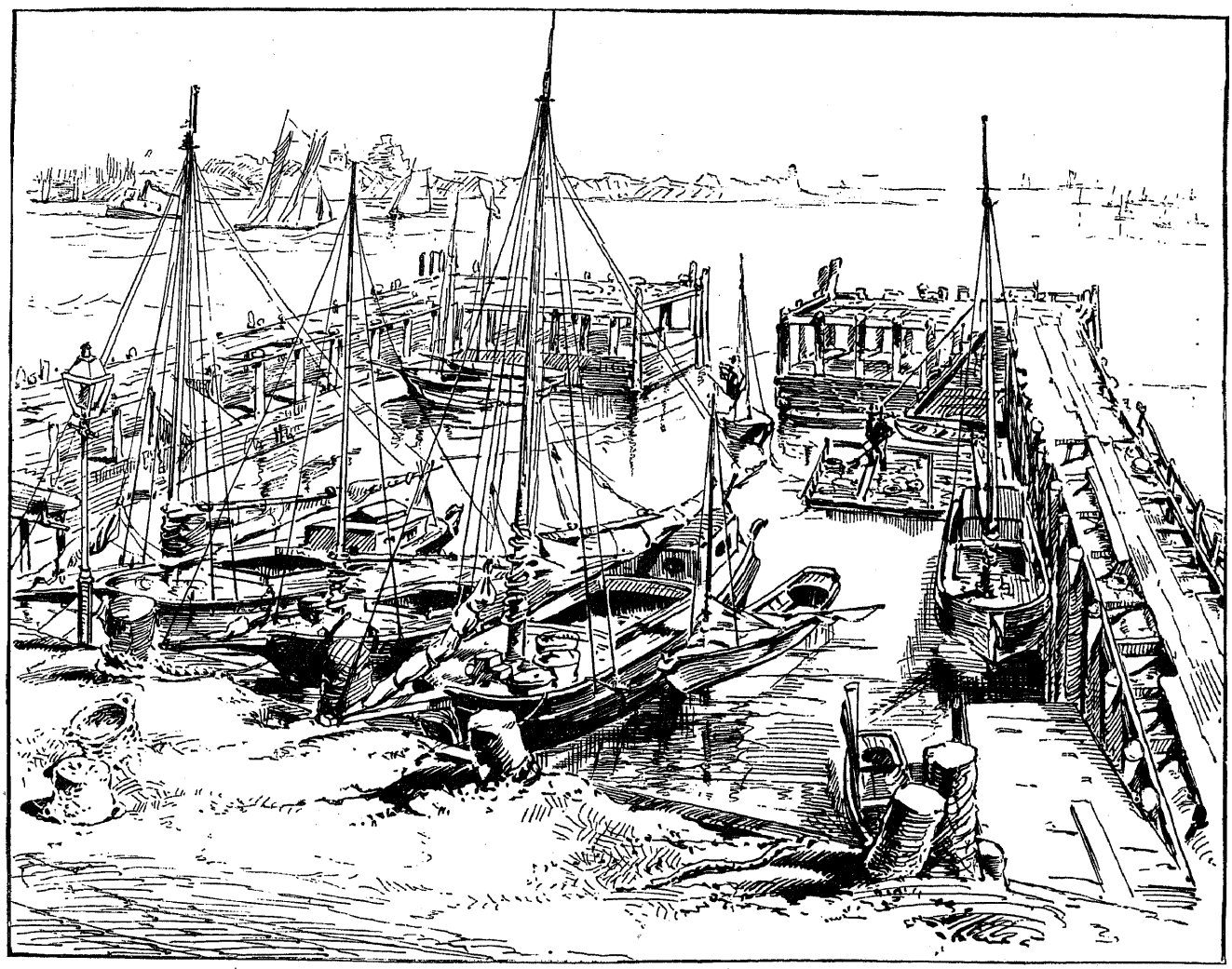
"*Hairing up.*"—I was told by Captain Wood, of Pleasant Plains, Long Island, that his oysters nowadays "haired up", by which he meant that a growth of hydroids, and perhaps also of sea-weed, grew upon them to such an extent as to keep them poor. This might operate thus in two ways: a luxurious hydroid would both consume and tend to keep from entering its mouth a part of the mollusk's food-supply; and it might also form eddies, acting as an impediment to catch drifting matter, weeds, and the like, until the mollusks were partially buried and smothered. I believe, however, that the danger from this source is of little account; while some fishermen assured me that to have the red-beard, and gray-beard, *Sertularia argentea*, and several other hydroids and bryozoa, which pass under the general name of "scurf" and "yellow moss", appear plentifully on the beds, was a sure sign that the oysters were doing well.

*Mussels.*—A more serious cause of disquietude, and one I here met with for the first time, is the fastening of great quantities of young black mussels, *Modiola plicatula*, on the oyster-beds. This happened last year in certain parts of Prince's bay to a formidable extent. It is liable to occur also in the lower part of the East river, but I have heard no complaint from there. It is not my purpose in these chapters to do more than mention the enemies present at a particular point, reserving a fuller description of each for a special chapter. This nuisance varies somewhat with different years, and at Keyport, perhaps owing to favorable currents, seems not to happen at all.

*Drums, skates, and rays.*—A less constant though more openly destructive agent of evil is the drum-fish, *Pogonias chromis*, which is here at its worst, and once in a few years completely devastated many beds, picking up thousands of mollusks, crushing them in his powerful teeth, and dropping the fragments, heedless of mischief. Thirty years ago was the well-remembered drum-fish year, and since then only occasional forays have been committed by them.

The skates and the sting-ray—especially the latter—are a source of constant damage, the amount of which aggregates a large sum every year. The clever device, described in the chapter on the oyster's enemies, by which the drum-fish seem to have been frightened away, avails nothing in the case of the "stingaree", whose devastations seem unavoidable and of the most importance of all oyster-foes.

*Starfishes and drills.*—Starfish very rarely occur, and the periwinkles and conchs are of small account in doing harm, but in 1878 the drill, *Urosalpinx cinerea*, proved himself a great nuisance about East point, injuring many beds there beyond repair. Since that time, however, little has been seen of him.



INCLOSED DOCK FOR OYSTER-VESSELS AT PERTH AMBOY, N. J.

"THE CREEK" AT KEYPORT, N. J., WITH OYSTER-BOATS, SKIFFS, AND SCOWS.

*Easterly gales.*—Eastward gales are likely to move the bottom of Staten Island sound in an unfortunate manner, and every planter has his tale of beds lost by being buried under drifted sand, or swept out of existence. This kind of a wind is rare, however. Winters hard enough to kill the oysters have occurred, but not lately, except that in 1878–'79 cold weather, high winds, and low tides coming together, have exposed the Raritan beds and destroyed large portions of them. In the Raritan river, particularly at Perth Amboy, the oystermen are obliged to erect strong quadrangular slips or docks, inside which they may crowd with their sloops and oyster-boats and cull their oysters in peace, since the winter-sea in the harbor is likely to be too rough to permit work. This is an important item of expense to them. In this connection I may quote Mr. Samuel Lockwood's words, written in 1873:

> It will be news to many to learn that the business of the oyster-producer is one of great risk. All is not gain to these industrious people, for often capital is sunk in the waters that is never taken up. Many years ago we remember the then small village of Keyport suffering a loss in one season of $50,000. Even a severe storm, continued unusually long, has smothered the beds by agitation of the mud, for the oyster must keep its nib out of the bottom. But two seasons ago, in one of the branches of Shrewsbury river, a crop was almost entirely lost, the supposition being that it was poisoned by the washing from a new turnpike, in the construction of which a peculiar ferruginous earth had been used. Formerly the oyster throve as a native as high up the North river as Peekskill, and probably its limit was not below fifty miles from the mouth of the river. They are now, however, exceedingly scarce, even as high as Croton. The belief exists that the railroad has destroyed them by the washing from the necessary working of the road, which is constantly finding its way to the river-bed. So long ago as 1851, Col. John P. Cruger, of Cruger's Landing, a very intelligent observer, called our attention to the fact of the mischief thus done.
>
> And there are meteoric causes which affect the oyster. We have known an unusually severe winter to kill the bivalves in great numbers. And even the seed, in its transport from Virginia, has been destroyed—whole valuable cargoes—by foggy weather and adverse storms.

*Vessels.*—The Raritan planters are also troubled by vessels grounding upon their beds and ruining from 100 to 500 bushels at once. There are no authorized buoys or light-houses to point out the proper channel to strangers, and there is, I believe, no redress. The planters complained to me sharply concerning this matter, and thought that legal protection should be given them, but I did not learn precisely what they wanted from the federal government.

*Thieves.*—Another sort of trouble arises from the ubiquitous thief, who is said to flourish greatly in the neighborhood of Staten Island. In those waters which lie between the island and the New Jersey shore, there has always been contention and litigation, resulting in constant arrests and bad feeling back and forth, through alleged violations of state boundaries and the rights which each state reserves to its own citizens. One planter at Perth Amboy wrote me that "in spite of all vigilance and paying watchmen, we lose all around about 10 per cent. every year by thieves".

THE OYSTERMEN.—Notwithstanding these obstructions to perfect success, the oyster-interests of New York bay are the livelihood of a considerable number of people, though it is probable that the population at present supported by them is reduced by at least a quarter from the total of ten years ago. All the inhabitants of the southern half of Long Island may be called oystermen, since many of them have invested a little in the beds in some shape, or work more or less on hire for the regular growers. Exactly how many real planters there are on the island I could not ascertain in the time at my command; they are scattered everywhere, but chiefly live at Pleasant Plains, Tottenville, Rossville, and Chelsea. On the north shore live many New York merchants, like the Van Names, etc., who plant southern oysters almost entirely. Their capital, also, with that of many other New York dealers, whose names do not appear, aids a large number of outside planters who are, in fact, only managers of the under-water estates which they apparently own and operate. This is not derogatory to their personal worth or dignity, but only one of the methods of trade, shaped by peculiarities of the laws bearing upon the subject.

By the operations in oyster-culture in and about the various centers within the range of this chapter, I conclude the number of families wholly supported to be somewhat as follows:

| | Families. |
|---|---|
| At Prince's bay, Staten Island | 50 |
| At Tottenville, Staten Island | 75 |
| Remainder of Staten Island | 25 |
| Perth Amboy | 75 |
| Keyport and south shore | 400 |
| Total | 625 |

It must not be supposed that each one of the heads of these 625 families plants and harvests enough oysters to supply his expenses, not to say profits, every year. That would be true only of the minority. But each one owns a piece of ground and works on it to the extent of his means. At other times he hires his services to his richer neighbors, or digs and rakes clams. Each man owns a small boat, worth from $20 to $75, and the most of them have a sail-boat, which, if for practical use alone, will be worth from $200 to $500, but if intended to answer the larger purpose of dredging, carrying oysters to the city, and pleasure-excursions in summer, may be valued as high as $2,000. The boats of all sorts hereabouts are of superior workmanship. The wages received by laborers, who require a certain degree of skill, range from $2 to $2 50 a day, the men bringing their own boat and tools. Twelve

and a half cents a bushel is the usual price paid in "catching up" for market. The seed-planting, spring and fall, the watching of the beds, and culling of the oysters on shore, are the chief requirements of work done on days' wages, for the shifting is chiefly done by contract.

THE OYSTER-FLEET.—The oyster-fleet between New York city and Sandy Hook is very large. Almost innumerable crafts, with trim sails, crowd the bay on working-days. The sail-boats used here are of good build, and often cost $3,000, while an unusually good quality of clinker-built, shallow-draft keel-boats, called skiffs, worth from $75 to $125, are used. A third sort of small boat is flat-bottomed and straight-sided, like a small Connecticut sharpie; this is known as a bateau, and costs from $15 to $30. Two skiffs and a bateau may be counted for every regular oyster-sloop or cat-boat.

THE NET RESULTS.—The total product of Staten Island beds, so far as I could ascertain, is as follows, the time being the season of 1879-'80. This enumerates only the native oysters, since I could learn of only about 15,000 bushels a year of southern oysters planted at present around Staten Island, except those brought north by New York city dealers, and counted in the chapter devoted to the metropolis. The total product is:

| | Bushels. |
|---|---|
| At Prince's bay | 50,000 |
| By Tottenville planters | 55,000 |
| By Chelsea planters | 25,000 |
| Total | 130,000 |
| Add to this: | |
| For Perth Amboy | 100,000 |
| For Keyport and South shore | 25,000 |
| Total | 255,000 |
| Southern oysters not counted for New York city planters | 175,000 |
| Grand total of all kinds | 430,000 |

ESTIMATES IN RECAPITULATION:

| | "Native." | "Virginia." | Families. |
|---|---|---|---|
| Perth Amboy | 100,000 | ..... | 75 |
| Tottenville | 55,000 | 10,000 | 75 |
| Prince's bay | 50,000 | 5,000 | 50 |
| Chelsea | 25,000 | ..... | 25 |
| Keyport | 25,000 | *160,000 | 400 |
| | 255,000 | 175,000 | 625 |

*Many more Virginia oysters are planted in Keyport, but the rest are owned *and counted* in New York city.

STATISTICAL RECAPITULATION FOR NEW YORK BAY:

| | | |
|---|---|---|
| Number of planters, wholesale dealers, and shippers | | 500 |
| Extent of ground cultivated, about | acres | 2,250 |
| Number of vessels and sail-boats engaged, about | | 400 |
| Value of same, with equipment | | $200,000 |
| Number of men hired by planters or dealers | | 125 |
| Annual earnings of same | | $62,500 |
| Total number of families supported | | 625 |
| Annual sales of— | | |
| I. Native oysters | bushels | 255,000 |
| Value of same | | $250,000 |
| II. Chesapeake "plants" | bushels | 175,000 |
| Value of same | | $125,000 |
| Total value of oysters sold annually | | $375,000 |